



024



Emergency

U.B.S.

Union Battery Service, a single partner for batteries, battery chargers and accessories dedicated to the world of Aerial Platforms, Industrial Cleaning Machines, Boating and Motorhomes, Electric Vehicles, Renewable Energies.

U.B.S. has a network of Service Centres called Service Points with qualified technicians, constantly updated to ensure efficient and effective advice and solutions. The Battery & Charger Academy project was recently launched, aimed to all those who want to distinguish themselves by undertaking a specific training course.

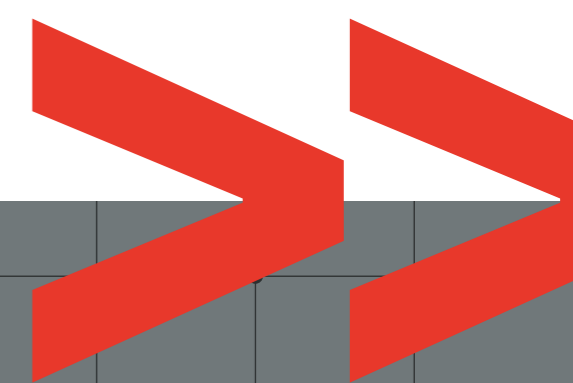
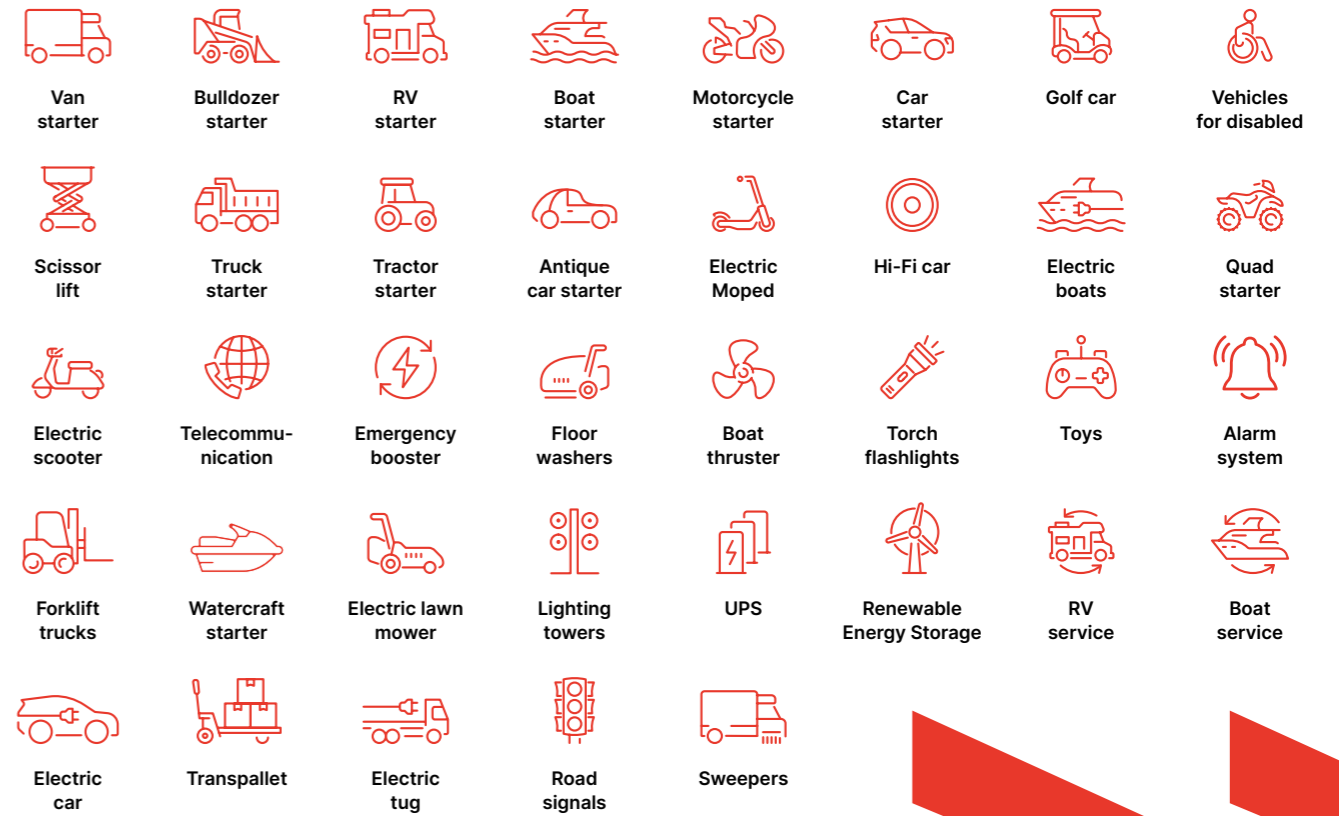
www.unionbatteryservice.it

MG

The knowledge, skills and experience of Mori Raddrizzatori and Union Battery Service merged to form the Mori Group, an organisation focused on the world of batteries and battery chargers, with a complete 360° vision. We accompany our customers from the choice of the correct battery, appropriately sized and properly charged. We introduce innovative technical solutions, complementing everything with excellent after-sales service and state-of-the-art training processes: as Leonardo da Vinci said, 'Knowledge is the child of experience'.

www.moriraddrizzatori.it

Range of action of products



Energy, everywhere, always, soon



3,500 sqm

The central warehouse is equipped with an integrated logistics system and 2500 pallet spaces, to offer shipments within 24 hours after receiving your order.

Stock

All products on the catalogue are managed in stock. Distributors have access to our availabilities in real time.

98% CUSTOMER SATISFACTION

98% of our customers are satisfied with our service and products.

Global Solution

Not only a quality battery, but also a correct battery charger along with the best accessories to ensure energy over time.

NEWS 2024

Gel sealed lead batteries.

Certified Strength

Union Battery Service has a certified strength index among the highest in the sector: we are not interested in the hit and run, but in following our customers over time.



AGM maintenance free batteries



Zenith ZGL

This series of batteries is not suitable for cyclic applications. If used in boating / RV applications, the battery pack capacity must be sized so that the discharge current does not exceed 0.2C/20h (i.e. Max. 20A discharge of 100Ah / 20h of battery). This allows the battery to gain a reasonable autonomy and a more than acceptable battery life.

- Never discharge more than 80%. Deeper discharges void any warranty

- For starter batteries we suggest our ZPC series (page 9)



For further details on the mode, see general warranty conditions on our website



APPLICATIONS

- > UPS
- > Toys
- > Marine/RV
- > Alarm System
- > Telecommunication

Battery 6V



| Code | V | Capacity | | Dimensions (mm) | | | | Term. | Weight (Kg) | Pallet quant. |
|-----------|---|----------|-------|-----------------|------|-------|-------|-------|-------------|---------------|
| | | Ah/20h | Ah/5h | L ↔ | W ↗ | H ↑ | H+T | | | |
| ZGL060016 | 6 | 5,00 | 4,25 | 70,0 | 47,0 | 100,0 | 107,0 | F1 | 0,75 | 420 |
| ZGL060020 | 6 | 7,00 | 5,95 | 151,0 | 34,0 | 94,0 | 100,0 | F1 | 1,10 | 420 |
| ZGL060026 | 6 | 12,00 | 10,20 | 151,0 | 50,0 | 93,0 | 98,0 | F1 | 1,86 | 264 |

For details refer to the data sheets on our website
Dimensions tolerance +/- 2 - 4 mm

To consult the terminals, go to page 27

Battery 12V to 22Ah



| Code | V | Capacity | | Dimensions (mm) | | | | Term. | Weight (Kg) | Pallet quant. |
|-----------|----|----------|-------|-----------------|------|-------|-------|-------|-------------|---------------|
| | | Ah/20h | Ah/5h | L ↔ | W ↗ | H ↑ | H+T | | | |
| ZGL120005 | 12 | 1,20 | 1,02 | 97,0 | 43,0 | 52,0 | 58,0 | F1 | 0,60 | 420 |
| ZGL120010 | 12 | 2,00 | 1,70 | 178,0 | 35,0 | 60,0 | 66,0 | F1 | 0,87 | 420 |
| ZGL120014 | 12 | 2,40 | 1,94 | 178,0 | 35,0 | 61,0 | 67,0 | F1 | 0,97 | 420 |
| ZGL120020 | 12 | 3,20 | 2,45 | 134,0 | 67,0 | 59,5 | 66,0 | F1 | 1,30 | 420 |
| ZGL120024 | 12 | 5,00 | 4,45 | 90,0 | 70,0 | 101,0 | 107,0 | F1 | 1,54 | 420 |
| ZGL120026 | 12 | 7,20 | 6,12 | 151,0 | 65,0 | 93,5 | 100,0 | F1 | 2,10 | 360 |
| ZGL120027 | 12 | 7,20 | 6,12 | 151,0 | 65,0 | 93,5 | 100,0 | F2 | 2,10 | 360 |
| ZGL120028 | 12 | 8,50 | 6,95 | 151,0 | 65,0 | 94,0 | 100,0 | F2 | 2,30 | 360 |
| ZGL120032 | 12 | 12,00 | 10,70 | 151,0 | 99,0 | 95,0 | 101,0 | F2 | 3,40 | 200 |
| ZGL120034 | 12 | 18,00 | 16,00 | 181,0 | 77,0 | 167,0 | 167,0 | M5 | 5,60 | 128 |
| ZGL120035 | 12 | 18,00 | 15,30 | 180,0 | 75,0 | 167,0 | 167,0 | F3 | 5,50 | 128 |
| ZGL120036 | 12 | 22,00 | 18,70 | 181,0 | 77,0 | 167,0 | 167,0 | M5 | 6,35 | 128 |

Battery 12V from 26Ah to 100Ah



| Code | V | Capacity | | Dimensions (mm) | | | | Term. | Weight (Kg) | Pallet quant. |
|-----------|----|----------|-------|-----------------|-------|-------|-------|-------|-------------|---------------|
| | | Ah/20h | Ah/5h | L ↔ | W ↗ | H ↑ | H+T | | | |
| ZGL120042 | 12 | 26,00 | 24,00 | 165,0 | 176,0 | 125,0 | 125,0 | M6 | 8,20 | 80 |
| ZGL120048 | 12 | 35,00 | 29,80 | 193,5 | 130,0 | 166,5 | 166,5 | M6 | 10,50 | 75 |
| ZGL120054 | 12 | 45,00 | 38,30 | 198,0 | 166,0 | 171,0 | 171,0 | M6 | 13,50 | 60 |
| ZGL120058 | 12 | 55,00 | 48,00 | 230,0 | 138,0 | 210,0 | 215,0 | M6 | 17,30 | 60 |
| ZGL120062 | 12 | 65,00 | 57,00 | 349,5 | 166,0 | 174,0 | 174,0 | M6 | 23,00 | 48 |
| ZGL120070 | 12 | 80,00 | 68,00 | 260,0 | 169,0 | 211,0 | 215,0 | M6 | 24,50 | 36 |
| ZGL120073 | 12 | 90,00 | 75,00 | 349,5 | 166,0 | 174,0 | 174,0 | M6 | 24,00 | 48 |
| ZGL120077 | 12 | 100,00 | 83,00 | 306,0 | 169,0 | 210,0 | 215,0 | M6 | 29,00 | 36 |
| ZGL120078 | 12 | 100,00 | 85,00 | 328,0 | 172,0 | 215,0 | 219,0 | M8 | 31,00 | 36 |

Battery 12V from 120Ah to 260Ah



| Code | V | Capacity | | Dimensions (mm) | | | | Term. | Weight (Kg) | Pallet quant. |
|-----------|----|----------|--------|-----------------|-------|-------|-------|-------|-------------|---------------|
| | | Ah/20h | Ah/5h | L ↔ | W ↗ | H ↑ | H+T | | | |
| ZGL120085 | 12 | 120,00 | 102,00 | 327,0 | 172,0 | 217,0 | 222,0 | M8 | 31,20 | 36 |
| ZGL120086 | 12 | 135,00 | 118,00 | 341,0 | 173,0 | 283,0 | 287,0 | M8 | 40,00 | 24 |
| ZGL120088 | 12 | 160,00 | 136,00 | 483,0 | 170,0 | 240,0 | 240,0 | M8 | 46,00 | 24 |
| ZGL120092 | 12 | 200,00 | 170,00 | 530,0 | 209,0 | 215,0 | 219,0 | M8 | 52,00 | 18 |
| ZGL120098 | 12 | 260,00 | 221,00 | 520,0 | 269,0 | 220,0 | 223,0 | M8 | 73,20 | 12 |

For details refer to the data sheets on our website
Dimensions tolerance +/- 2 - 4 mm

To consult the terminals, go to page 27



AGM maintenance free batteries



EXTRA POWER

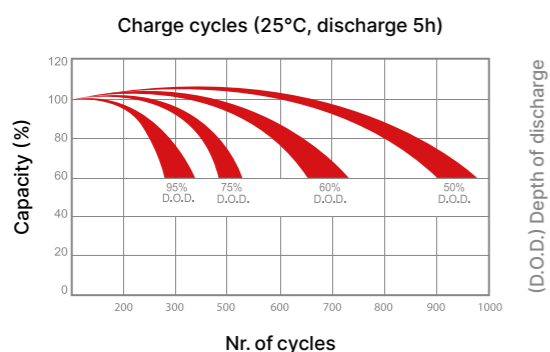
Zenith ZL

DEEP-CYCLE.

- See battery data sheets for proper charge cycle and charger set-up
- Never discharge more than 80%. Deeper discharges void any warranty
- Maintenance-free AGM technology

WARRANTY 24 MONTHS

For further details on the mode, see general warranty conditions on our website



APPLICATIONS

- > Scrubbers
- > Sweepers
- > Golf cars
- > Electric Boats
- > Electric Scooters
- > Renewable Energy
- > Vehicles for Disabled
- > All electric vehicles
- > Marine
- > RV Service
- > Lighting towers

Battery 6V-8V



| Code | Mod. | V | Capacity | | Dimensions (mm) | | | | Term. | Weight (Kg) | Pallet quant. |
|----------|-------|---|----------|-------|-----------------|-------|-------|-------|-------|-------------|---------------|
| | | | Ah/20h | Ah/5h | L ↔ | W ↗ | H ↑ | H+T | | | |
| ZL060100 | - | 6 | 200 | 170 | 306,0 | 169,0 | 220,0 | 226,0 | M8 | 27,0 | 36 |
| ZL060110 | GC105 | 6 | 225 | 182 | 260,0 | 180,0 | 245,0 | 250,0 | M8 | 30,5 | 36 |
| ZL060115 | DIN | 6 | 245 | 200 | 245,0 | 187,0 | 275,0 | 275,0 | M8 | 31,5 | 36 |
| ZL060125 | 305 | 6 | 335 | 275 | 295,0 | 178,0 | 345,0 | 368,0 | DT | 45,0 | 22 |
| ZL060130 | L16 | 6 | 410 | 320 | 295,0 | 180,0 | 405,0 | 425,0 | DT | 55,0 | 22 |
| ZL080110 | GC875 | 8 | 180 | 150 | 261,0 | 182,0 | 270,0 | 275,0 | M8 | 34,0 | 24 |

Battery 12V to 45Ah



| Code | Mod. | V | Capacity | | Dimensions (mm) | | | | Term. | Weight (Kg) | Pallet quant. |
|----------|------|----|----------|-------|-----------------|-------|-------|-------|-------|-------------|---------------|
| | | | Ah/20h | Ah/5h | L ↔ | W ↗ | H ↑ | H+T | | | |
| ZL120110 | - | 12 | 13 | 11 | 151,0 | 99,0 | 95,0 | 101,0 | F2 | 4,2 | 200 |
| ZL120120 | - | 12 | 24 | 18 | 181,0 | 77,0 | 167,0 | 167,0 | M5 | 5,8 | 128 |
| ZL120130 | - | 12 | 26 | 22 | 165,0 | 174,0 | 125,0 | 125,0 | M6 | 8,4 | 80 |
| ZL120135 | - | 12 | 36 | 28 | 196,0 | 131,0 | 145,0 | 165,0 | M6 | 10,8 | 75 |
| ZL120150 | - | 12 | 45 | 35 | 198,0 | 166,0 | 174,0 | 174,0 | M6 | 14,5 | 60 |

Battery 12V from 55Ah to 130Ah



| Code | Mod. | V | Capacity | | Dimensions (mm) | | | | Term. | Weight (Kg) | Pallet quant. |
|----------|------|----|----------|-------|-----------------|-------|-------|-------|-------|-------------|---------------|
| | | | Ah/20h | Ah/5h | L ↔ | W ↗ | H ↑ | H+T | | | |
| ZL120155 | - | 12 | 55 | 47 | 230,0 | 138,0 | 210,0 | 215,0 | M6 | 18,3 | 60 |
| ZL120165 | - | 12 | 75 | 65 | 349,5 | 166,0 | 174,0 | 174,0 | M6 | 23,0 | 48 |
| ZL120175 | 24 | 12 | 86 | 76 | 260,0 | 169,0 | 215,0 | 219,0 | M6 | 26,0 | 48 |
| ZL120185 | 27 | 12 | 110 | 90 | 306,0 | 170,0 | 210,0 | 215,0 | M8 | 30,5 | 36 |
| ZL120190 | 31 | 12 | 130 | 105 | 331,0 | 175,0 | 215,0 | 215,0 | M8 | 33,0 | 36 |

Battery 12V from 140Ah to 260Ah



| Code | Mod. | V | Capacity | | Dimensions (mm) | | | | Term. | Weight (Kg) | Pallet quant. |
|-----------|------|----|----------|-------|-----------------|-------|-------|-------|-------|-------------|---------------|
| | | | Ah/20h | Ah/5h | L ↔ | W ↗ | H ↑ | H+T | | | |
| ZL1201105 | DIN | 12 | 140 | 115 | 340,0 | 172,0 | 280,0 | 285,0 | M8 | 39,5 | 24 |
| ZL1201115 | - | 12 | 160 | 125 | 484,0 | 171,0 | 241,0 | 241,0 | M8 | 46,0 | 24 |
| ZL1201120 | 4D | 12 | 200 | 160 | 532,0 | 206,0 | 216,0 | 221,0 | M8 | 59,6 | 18 |
| ZL1201135 | 8D | 12 | 220 | 180 | 522,0 | 240,0 | 219,0 | 224,0 | M8 | 65,8 | 18 |
| ZL1201145 | 8D | 12 | 260 | 215 | 521,0 | 269,0 | 220,0 | 228,0 | M8 | 77,8 | 12 |

For details refer to the data sheets on our website
Dimensions tolerance +/- 2 - 4 mm

To consult the terminals, go to page 27

AGM maintenance free batteries



LEISURE MARINE

Zenith ZLM

SPECIFIC AGM BATTERIES FOR LEISURE MARINE

- Maintenance-free
- See battery data sheets for proper charge cycle and charger set-up
- Never discharge more than 80% D.O.D. Deeper discharges void any warranty



For further details on the mode, see general warranty conditions on our website



TRIPLE PURPOSE

- > Lights and Services
- > Cranking
- > Thrusters

APPLICATIONS

- > Boat cranking
- > Boat thruster
- > Boat service

| Code | V | Capacity | | Cranking "en" | | Dimensions (mm) | | | | Term. | Pol. | Weight (Kg) | Pallet quant. |
|-----------|----|----------|-------------|---------------|-----|-----------------|-----|--------|---|-------|------|-------------|---------------|
| | | Ah/20h | CCA (-18°C) | L ↔ | W ↗ | H ↑ | H+T | | | | | | |
| ZLM120075 | 12 | 100 | 920 | 330 | 174 | 222 | 242 | M10+AP | R | 32,0 | 36 | | |
| ZLM120100 | 12 | 200 | 1200 | 510 | 223 | 220 | 242 | M10+AP | L | 57,0 | 18 | | |

For details refer to the data sheets on our website
Dimensions tolerance +/- 2 - 4 mm

To consult the terminals, go to page 27

AGM maintenance free batteries



PROFESSIONAL

Zenith ZPC

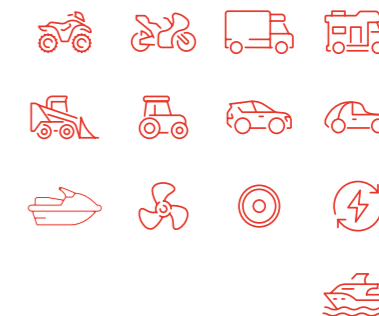
HIGH CRANKING CURRENT. PROFESSIONAL USE.

WHY CHOOSING A ZPC BATTERY?

- 30% cranking power more than normal starter batteries
- AGM technology for increased resistance to vibration
- Hybrid: in some cases, they can also be used for deep-cycle use
- Robust for professional uses



For further details on the mode, see general warranty conditions on our website



APPLICATIONS

- > Booster/starter
- > Starter: Start/Stop Car; Antique Car; Boats; RV; Farm machinery; Military vehicles; Trucks
- > Boat thruster
- > Hi-Fi car

| Code | V | Capacity | | Cranking "EN" | | | Dimensions (mm) | | | | Term. | Pol. | Weight (Kg) | Pallet quant. |
|-----------|----|----------|-------------|---------------|-----|-----|-----------------|-----|-----|---|-------|------|-------------|---------------|
| | | Ah/20h | CCA (-18°C) | CA (0°C) | L ↔ | W ↗ | H ↑ | H+T | | | | | | |
| ZPC120020 | 12 | 20 | 230 | 310 | 181 | 77 | 158 | 167 | M5 | R | 5,75 | 144 | | |
| ZPC120025 | 12 | 28 | 410 | 530 | 165 | 176 | 125 | 125 | M8 | R | 10,7 | 84 | | |
| ZPC120030 | 12 | 30 | 450 | 550 | 250 | 97 | 142 | 156 | M6 | R | 10,0 | 75 | | |
| ZPC120051 | 12 | 65 | 825 | 1000 | 260 | 171 | 185 | 207 | AP | L | 20,9 | 42 | | |
| ZPC120065 | 12 | 100 | 965 | 1170 | 307 | 169 | 214 | 237 | DT | L | 32,2 | 36 | | |
| ZPC120075 | 12 | 110 | 1100 | 1360 | 330 | 173 | 215 | 236 | M10 | R | 34,5 | 36 | | |

For details refer to the data sheets on our website
Dimensions tolerance +/- 2 - 4 mm

To consult the terminals, go to page 27

GEL sealed lead batteries



GEL-MORE CYCLES

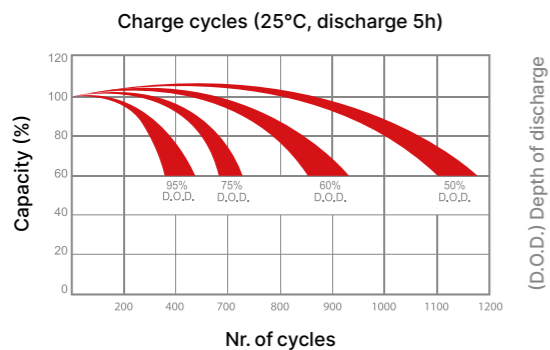
Zenith GEL

DEEP-CYCLE

- Excellent performance at high discharge currents
- Over 700 cycles
- Greater number of cycles (charge/discharge)
- Maintenance-free gel technology
- For charging cycle and battery charge calibration, see battery technical data sheets
- Never discharge more than 80% D.O.D. Deeper discharges void any warranty



For further details on the mode, see general warranty conditions on our website



APPLICATIONS

- > Floor washers
- > Sweepers
- > Electric boats
- > Electric scooters
- > Renewable energies
- > Vehicles for disabled
- > All electric vehicles
- > Electric platforms

Zenith GEL

Deep-cycle gel sealed lead batteries
GEL DEEP-CYCLE (CYCLICAL USE)



| Code | USA Model | V | Capacity | | Dimensions (mm) | | | Term. | Weight (Kg) | Pallet quant. |
|-------------|-----------|----|----------|--------|-----------------|-------|---------|-------|-------------|---------------|
| | | | Ah/5h | Ah/20h | L ↔ | W ↗ | H ↑ max | | | |
| ZGEL060115 | DIN | 6 | 180 | 210 | 245,0 | 187,0 | 275,0 | M8 | 32,0 | 36 |
| ZGEL060125 | 305 | 6 | 250 | 290 | 295,0 | 178,0 | 345,0 | M8 | 46,1 | 22 |
| ZGEL060130 | L16 | 6 | 290 | 340 | 295,0 | 178,0 | 405,0 | M8 | 53,5 | 22 |
| ZGEL120160 | - | 12 | 55 | 60 | 258,0 | 167,0 | 182,0 | M6 | 19,0 | 48 |
| ZGEL120175 | 24 | 12 | 65 | 75 | 260,0 | 168,0 | 215,0 | M6 | 23,2 | 48 |
| ZGEL120185 | 27 | 12 | 80 | 90 | 306,0 | 168,0 | 215,0 | M8 | 27,7 | 36 |
| ZGEL120190 | 31 | 12 | 90 | 100 | 329,0 | 172,0 | 215,0 | M8 | 32,0 | 36 |
| ZGEL1201105 | DIN | 12 | 110 | 135 | 341,0 | 173,0 | 281,0 | M8 | 41,30 | 24 |
| ZGEL1201115 | - | 12 | 122 | 150 | 483,0 | 170,0 | 240,0 | M8 | 44,7 | 24 |
| ZGEL1201126 | 4D | 12 | 165 | 190 | 532,0 | 208,0 | 227,0 | M8 | 58,4 | 18 |
| ZGEL1201145 | 8D | 12 | 205 | 230 | 520,0 | 268,0 | 220,0 | M8 | 74,50 | 12 |

For details refer to the data sheets on our website
Dimensions tolerance +/- 2 - 4 mm

To consult the terminals, go to page 27



AGM maintenance free batteries



Zenith ZLS

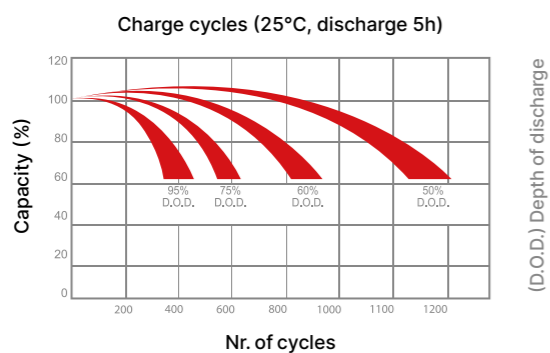
DEEP-CYCLE

Why choosing a ZLS battery?

- 20% cycles more than ZL series
- Innovative solution to reduce the negative effects of stratification
- Specific design increasing performance for the discharge in 2 hrs
- Maintenance free AGM technology



For further details on the mode, see general warranty conditions on our website



| Code | V | Capacity | | | Dimensions (mm) | | | | Term. | Weight (Kg) | Pallet quant. |
|-----------|----|----------|-------|-------|-----------------|-----|-----|-----|-------|-------------|---------------|
| | | Ah/20h | Ah/5h | Ah/2h | L ↔ | W ↗ | H ↑ | H+T | | | |
| ZLS120110 | 12 | 16,5 | 13,5 | 12 | 151 | 99 | 97 | 101 | F2 | 4,3 | 200 |
| ZLS120120 | 12 | 28 | 23 | 20 | 181 | 77 | 170 | 172 | M5 | 6,2 | 128 |

For details refer to the data sheets on our website
Dimensions tolerance +/- 2 - 4 mm



APPLICATIONS

- > Scrubbers
- > Sweepers
- > Electric Boats
- > Electric Scooters
- > Electric bikes
- > Vehicles for Disabled
- > Renewable Energy
- > Road signals

To consult the terminals, go to page 27

Display for Zenith Lithium batteries

Zenith LITHIUM Display

We have created for Zenith Lithium series an external display that shows to users some key parameters such as:

- Battery voltage
- Charging current indication
- Discharge current indication
- State of charge (S.o.C.) of the single battery
- Total state of charge (S.o.C.) of several batteries in parallel
- Battery temperature
- Remaining autonomy in relation to current absorption
- Error status
- Blocking relay for low battery
- IP55 protection (with USB rubber cap inserted correctly)



For further details on the mode, see general warranty conditions on our website



cod: ZLISWITCH connector for parallel connection



cod: ZLIDISPREMOTE connection cable from BMS to PC for remote assistance

> DISPLAY CABLES

| Codice | Description |
|---------------|-----------------------------|
| ZLIDISPCAB1.5 | Lithium display cable 1,5 m |
| ZLIDISPCAB3 | Lithium display cable 3 m |
| ZLIDISPCAB6 | Lithium display cable 6 m |
| ZLIDISPCAB12 | Lithium display cable 12 m |



Fixing holes



Input battery connection and Output Blocking relay



ON/OFF button for switching on, off and programming



Output USB



Wireless connectivity Zenith Lithium Display APP (Android) for remote viewing on phone or tablet

| Code | Dimensions (mm) | | | Weight (g) | Fixing holes | Screen | OUTPUT Blocking RELAY | Output USB |
|-------------|-----------------|-----|-----|------------|--------------------------|----------|---|---|
| | L ↔ | W ↗ | H ↑ | | | | | |
| ZLI-DISPLAY | 135 | 22 | 90 | 157 | 4 through holes Ø 3.6 mm | TFT 3.5" | 3-pole connector (COM, NA, NC) for blocking relay <small>(activates when battery SoC falls below 20%, disabled when battery SoC rises above 50%)</small> | USB2 socket for charging external batteries <small>(smartphone, tablet, etc)</small> |

For details refer to the data sheets on our website
Dimensions tolerance +/- 2 - 4 mm

Lithium LiFePO4 battery packs



More robust | Connectable in parallel
Repairable | batteries without any gas emission

Zenith Lithium

MAINTENANCE FREE: maintenance is not required.

SUPERIOR LIFETIME: the number of charge-discharge cycles is considerably higher than lead-acid batteries, so "cost per cycle" is lower.

LIGHT: they are up to 70% lighter than lead-acid batteries.

Only a minimum amount of the whole battery energy is employed to move the battery itself, so the vehicle autonomy is greater.

FAST CHARGE: they can be fully charged in 2hr (always use the proper battery charger). Vehicles, where they will be installed, will increase their productivity/autonomy.

- Always ask UNION BATTERY SERVICE authorization if you want to use them in parallel



For further details on the mode, see general warranty conditions on our website



Dimensions are completely suitable with those of lead batteries for easy interchanges

*Batteries in a metal case, equipped with display *For further details on the mode, see general warranty conditions on our website



APPLICATIONS

- > Marine/RV
- > Electric Boats
- > Vehicles for Disabled
- > Golf Cars
- > Renewable Energy
- > Scrubbers
- > Sweepers
- > Scissor lifts

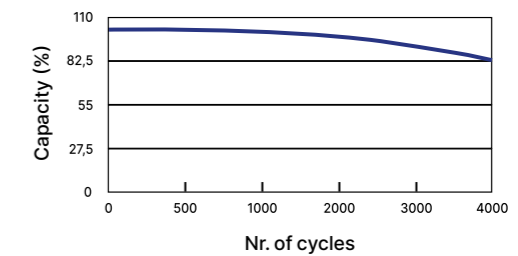
> LITHIUM BATTERY PACKS "LiFePO4", EQUIPPED WITH BMS CONTROL ELECTRONICS

| Code | V | Ah | KWh | Charge | | | Discharge | | | Dimens. (mm) | | | Weig. (Kg) | CAN BUS | Certif. UN 38.3 | Pallet quant. | |
|----------------|------|-----|------|--------|--------|-------|-----------|-------|---------------|--------------|-----|-----|------------|---------|-----------------|---------------|-----|
| | | | | Max V | Rec. V | Max A | Min V | Max V | Max A for 15" | Max A for 3" | L ↔ | W ↗ | | | | | H ↑ |
| ZLI012035* | 12,8 | 50 | 0,64 | 14,6 | 13,9 | 25 | 2,7V/cell | 50 | 100 | 200 | 195 | 165 | 165 | 8,0 | NO | NO | 15 |
| ZLI012051 | 12,8 | 100 | 1,28 | 14,6 | 13,9 | 50 | 2,7V/cell | 100 | 150 | 250 | 165 | 330 | 170 | 14,0 | NO | YES | 10 |
| ZLI012100 | 12,8 | 200 | 2,56 | 14,6 | 13,9 | 100 | 2,7V/cell | 200 | 250 | 400 | 170 | 340 | 280 | 28,0 | NO | YES | 5 |
| ZLI024036* | 25,6 | 50 | 1,28 | 29,2 | 27,8 | 25 | 2,7V/cell | 50 | 100 | 250 | 165 | 330 | 170 | 14,0 | NO | YES | 10 |
| ZLI024065 | 25,6 | 100 | 2,56 | 29,2 | 27,8 | 50 | 2,7V/cell | 100 | 200 | 400 | 170 | 340 | 280 | 27,5 | YES | YES | 5 |
| ZLI024070 | 25,6 | 100 | 2,56 | 29,2 | 27,8 | 50 | 2,7V/cell | 100 | 200 | 400 | 555 | 131 | 275 | 27,5 | YES | YES | 5 |
| ZLI024100 | 25,6 | 200 | 5,12 | 29,2 | 27,8 | 100 | 2,7V/cell | 200 | 250 | 400 | 200 | 554 | 280 | 50,5 | YES | YES | 3 |
| ZLI036065 | 38,4 | 100 | 3,84 | 43,8 | 41,7 | 50 | 2,7V/cell | 100 | 200 | 400 | 200 | 420 | 280 | 38,0 | YES | YES | 5 |
| ZLI036065.INOX | 38,4 | 100 | 3,84 | 43,8 | 41,7 | 50 | 2,7V/cell | 100 | 200 | 400 | 200 | 420 | 280 | 38,0 | YES | YES | 5 |
| ZLI048060 | 51,2 | 100 | 5,12 | 58,4 | 55,6 | 50 | 2,7V/cell | 100 | 200 | 400 | 305 | 344 | 280 | 48,0 | YES | YES | 3 |

*not parallelable

| Discharge temperature | Max | -15°C / +60°C |
|--------------------------|---------|---------------|
| | Working | -10°C / +45°C |
| Temperature for charging | Max | 0°C / +60°C |
| | Working | +5°C / +40°C |
| Storage temperature | Yearly | 0°C / 35°C |
| | Monthly | -20°C / 45°C |

Estimated number of cycles: 80% D.O.D. in C/2 Charge in C/2 25°C



> The capacity is constant in lithium battery: it does not change at different discharge current rates (see the table)

| Constant discharge current | Nominal capacity = Real capacity | |
|----------------------------|--|---|
| | Estimated autonomy ZLI201120 (12v 200Ah/20h) | Estimated autonomy ZLI12100 (12v/200Ah) |
| 10Amp | 20h | 20h |
| 20Amp | 9h | 10h |
| 30Amp | 5h | 6h 30min |
| 40Amp | 3h 40min | 5h |
| 50Amp | 3h | 4h |
| 60Amp | 2h 30min | 3h 30min |
| 70Amp | 2h | 2h 50min |
| 80Amp | N.C. | 2h 30min |
| 100Amp | N.C. | 2h |
| 150Amp | N.C. | 1h 20min |
| 200Amp | N.C. | 1h |

N.C: Discharge current not compatible with the battery

Comparative Table AGM-LITHIUM

In order to facilitate the correct sizing

> SUITABLE BATTERY CHARGERS

Recharge times considered with 100% discharged batteries

| Code | "Fast" charge | | "Normal" charge | | "Slow" charge | |
|-----------|----------------|-----------|-----------------|-----------|---------------|-----------|
| | Model | Time | Model | Time | Model | Time |
| ZLI012035 | / | / | ZHF1225.LH | 2h 10min. | / | / |
| ZLI012051 | / | / | ZHF1225.LH | 4h 10min. | / | / |
| ZLI012100 | / | / | / | / | ZHF1225.LH | 8h 20min. |
| ZLI024036 | ZHF2430.LH | 1h 50min. | ZHF2420.LH | 2h 50min. | / | / |
| ZLI024065 | ZHF2460.LH | 1h 50min. | ZHF2430.LH | 3h 40min. | ZHF2420.LH | 5h 10min. |
| ZLI024070 | ZHF2460.LH | 1h 50min. | ZHF2430.LH | 3h 40min. | ZHF2420.LH | 5h 10min. |
| ZLI024100 | ZHF2490PFC.LH | 2h 30min. | ZHF2460.LH | 3h 40min. | ZHF2430.LH | 6h 50min. |
| ZLI036065 | ZHF3670.PFC.LH | 1h 50min. | ZHF3640.LH | 2h 50min. | ZHF3620.LH | 5h 10min. |
| ZLI048060 | ZHF4855PFC.LH | 2h | ZHF4830.LH | 3h 40min. | ZHF4815.LH | 6h 50min. |

For details refer to the data sheets on our website
Dimensions tolerance +/- 2 - 4 mm

To consult the terminals, go to page 27

Programmer for battery charger

MP TOP II

Highly professional device, suitable for distributors or assistance centres, essential for programming and reading the data memory of the ZHF, MGX and EDM series battery chargers.

The KIT includes, in addition to the programmer, also the cable for connection to the battery charger, the cable for connection to the computer and the SW to install on the PC.

The lithium battery, inside the programmer, allows programming and data reading without other external power supplies. It will then be sufficient to connect it to the PC's USB port for charging.

The SW installed on the device can be updated by downloading directly from the website www.moriraddrizzatori.it.



Battery chargers For Zenith Lithium batteries

Zenith High Frequency



Equipped with button for "BMS" reactivation

Compatible only and exclusively with Zenith Lithium series batteries

- The nominal output current is CONSTANT CURRENT.
- All devices are equipped with power cable (SCHUKO 16A mains plug included where possible).
- All devices are supplied with output cables of 2,5MT, but WITHOUT the connector to the battery, supplied on request.
- Mains supply: single-phase 185V/265V three-phase 340V/460V.
- Frequency: 47/62 Hz
- Efficiency: single-phase >85% - three-phase >90%
- Temperature at work: -10°C / +50°C
- Voltage and current values are programmable, please verify on the data sheet.

WARRANTY 24 MONTHS

For further details on the mode, see general warranty conditions on our website

| Code | Output | | Kw | Mains voltage [A] - 230V | Dimensions (mm) | | | Weight (Kg) |
|---------------------------------|--------|-----|------|--------------------------|-----------------|-----|-----|-------------|
| | V | A | | | L ↔ | W ↗ | H ↑ | |
| ZHF1225.LH | 12 | 25 | 0,45 | 3,2 | 233 | 120 | 64 | 1,3 |
| ZHF2420.LH | 24 | 20 | 0,67 | 4,6 | 233 | 120 | 64 | 1,5 |
| ZHF2430.LH | 24 | 30 | 1,00 | 7,0 | 259 | 145 | 79 | 2,3 |
| ZHF2460.LH | 24 | 60 | 2,00 | 12,0 | 329 | 174 | 96 | 3,9 |
| ZHF3620.LH | 36 | 20 | 1,00 | 6,9 | 259 | 145 | 79 | 2,3 |
| ZHF3640.LH | 36 | 40 | 2,00 | 12,0 | 329 | 174 | 96 | 3,9 |
| ZHF4815.LH | 48 | 15 | 1,00 | 6,8 | 259 | 145 | 79 | 2,3 |
| ZHF4830.LH | 48 | 30 | 2,00 | 12,0 | 329 | 174 | 96 | 3,9 |
| Single-phase with P.F.C. | | | | | | | | |
| ZHF2490.PFC.LH | 24 | 90 | 3,1 | 13A 240V | 420 | 303 | 100 | 7,2 |
| ZHF3670.PFC.LH | 36 | 70 | 3,6 | 16A 230V | 420 | 303 | 100 | 7,2 |
| ZHF4855.PFC.LH | 48 | 55 | 3,7 | 16A 230V | 420 | 303 | 100 | 7,2 |
| Three-phase | | | | | | | | |
| ZHF36120T.LH | 36 | 120 | 6,0 | 11,5 | 540 | 340 | 130 | 11,5 |
| ZHF48120T.LH | 48 | 120 | 8,1 | 15,6 | 540 | 340 | 130 | 11,5 |

Dimensions tolerance +/- 2 - 4 mm

High frequency battery chargers



ZENITH HIGH FREQUENCY

STABILIZED: the charge is always optimal even in case of wide mains voltage variations.

The use of very long extension cables does not compromise the correct battery charge.

LIGHT AND COMPACT: the high frequency technology allows to minimize the weight and size.

VERSATILE: all devices allow an easy on board installation (electricity presence block and minimum battery voltage block).

EASY: the charge cycle automatically starts by inserting the mains plug. The microprocessor checks the battery charge level and the following charge cycle duration.

RELIABLE: the protecting resin enveloping the card protects the circuits from oxidation. It is equipped with a protective rooftop.

DATA MEMORY: the main information related to charge cycles are stored in the battery charger memory. Therefore, the user's behaviour during charge / discharge phases can be easily retraced and warranty costs can be substantially reduced.

FLEXIBLE: with the MP TOP II programmer you can set the battery charger for the charge of lead-acid or sealed batteries (GEL, AGM). Moreover, you can select the capacity of the battery to be charged (within the limits set for every model).

- The nominal output current is CONSTANT CURRENT.
- The manufacturer guarantees the recharge of the indicated capacities, within recommended times, with 80% of batteries discharge.
- Lower discharges involve lower charging times.
- The programming of these devices allows them to be adapted to the charge of any battery brand.
- All devices are equipped with power cable (SCHUKO 16A mains plug included where possible).
- All devices are supplied with output cables of 2,5MT, but WITHOUT the connector to the battery, supplied on request.
- Mains supply: single-phase 185V/265V - three-phase 340V/460V.
- Frequency: 47/62 Hz.
- Efficiency: single-phase > 85% - three-phase >90%
- Temperature at work: -10°C / +50°C.
- Batteries minimum voltage to allow the charge to start: 1,00 V/cell.



| Single-phase | | | | | | | | | | | | | | | | | | | | |
|--------------------------|-----------|-----|-------------------------|-----------|-----|------|-----------|------|-----|-----------|------|------------------------|-----------------|-----|------|-------------|-----|-----|----|-----|
| Code | Output | | Rechargeable batteries | | | | | | | | Kw | Mains voltage [A] 230V | Dimensions (mm) | | | Weight (Kg) | | | | |
| | | | Lead-acid | | | | Sealed | | | | | | L ↔ | W ↗ | H ↑ | | | | | |
| | 8h | | 11h | | 13h | | 12h | | | | | | | | | | | | | |
| | Ah/C5 min | Min | Max | Ah/C5 min | Min | Max | Ah/C5 min | Min | Max | Ah/C5 min | | | Min | Max | | | | | | |
| ZHF1212 | 12 | 12 | 30 | 80 | 30 | 120 | 30 | 140 | 30 | 120 | 0,23 | 1,8 | 233 | 120 | 64 | 1,3 | | | | |
| ZHF1212.C* | 12 | 12 | cycle "UoU" - 2,43/2,25 | | | | | | | | | | | | 0,23 | 1,8 | 233 | 120 | 64 | 1,3 |
| ZHF1225 | 12 | 25 | 100 | 160 | 100 | 240 | 100 | 300 | 100 | 240 | 0,45 | 3,2 | 233 | 120 | 64 | 1,3 | | | | |
| ZHF1225.C* | 12 | 25 | cycle "UoU" - 2,43/2,25 | | | | | | | | | | | | 0,45 | 3,2 | 233 | 120 | 64 | 1,3 |
| ZHF2412 | 24 | 12 | 30 | 80 | 30 | 120 | 30 | 140 | 30 | 120 | 0,41 | 3,0 | 233 | 120 | 64 | 1,3 | | | | |
| ZHF2420 | 24 | 20 | 80 | 120 | 80 | 200 | 80 | 240 | 80 | 200 | 0,67 | 4,6 | 233 | 120 | 64 | 1,5 | | | | |
| ZHF2430 | 24 | 30 | 120 | 180 | 120 | 300 | 120 | 360 | 120 | 300 | 1,00 | 7,0 | 259 | 145 | 79 | 2,3 | | | | |
| ZHF2460 | 24 | 60 | 180 | 360 | 180 | 600 | 180 | 720 | 180 | 600 | 2,00 | 12,0 | 329 | 174 | 96 | 3,9 | | | | |
| ZHF3620 | 36 | 20 | 80 | 120 | 80 | 200 | 80 | 240 | 80 | 200 | 1,00 | 6,9 | 259 | 145 | 79 | 2,3 | | | | |
| ZHF3640 | 36 | 40 | 160 | 240 | 160 | 420 | 160 | 480 | 160 | 420 | 2,00 | 12,0 | 329 | 174 | 96 | 3,9 | | | | |
| ZHF4815 | 48 | 15 | 60 | 100 | 60 | 160 | 60 | 180 | 60 | 160 | 1,00 | 6,8 | 259 | 145 | 79 | 2,3 | | | | |
| ZHF4830 | 48 | 30 | 120 | 180 | 120 | 300 | 120 | 360 | 120 | 300 | 2,00 | 12,0 | 329 | 174 | 96 | 3,9 | | | | |
| ZHF6020 | 60 | 20 | 80 | 120 | 80 | 200 | 80 | 240 | 80 | 200 | 1,70 | 12,0 | 329 | 174 | 96 | 3,9 | | | | |
| ZHF7220 | 72 | 20 | 80 | 120 | 80 | 200 | 80 | 240 | 80 | 200 | 2,00 | 12,0 | 329 | 174 | 96 | 3,9 | | | | |
| ZHF8020 | 80 | 20 | 80 | 120 | 80 | 200 | 80 | 240 | 80 | 200 | 2,10 | 14,0 | 329 | 174 | 96 | 3,9 | | | | |
| ZHF8420 | 84 | 20 | 80 | 120 | 80 | 200 | 80 | 240 | 80 | 200 | 2,10 | 14,5 | 329 | 174 | 96 | 3,9 | | | | |
| Single-phase with P.F.C. | | | | | | | | | | | | | | | | | | | | |
| ZHF2490.PFC | 24 | 90 | 270 | 540 | 270 | 900 | 270 | 1080 | 270 | 900 | 3,1 | 13A 240V | 420 | 303 | 100 | 7,2 | | | | |
| ZHF3660.PFC | 36 | 60 | 180 | 360 | 180 | 600 | 180 | 720 | 180 | 600 | 3,1 | 13A 240V | 420 | 303 | 100 | 7,2 | | | | |
| ZHF3670.PFC | 36 | 70 | 180 | 420 | 180 | 720 | 180 | 840 | 180 | 720 | 3,6 | 16A 230V | 420 | 303 | 100 | 7,2 | | | | |
| ZHF4845.PFC | 48 | 45 | 180 | 270 | 180 | 480 | 180 | 540 | 180 | 480 | 3,1 | 13A 240V | 420 | 303 | 100 | 7,2 | | | | |
| ZHF4855.PFC | 48 | 55 | 180 | 330 | 180 | 540 | 180 | 660 | 180 | 540 | 3,7 | 16A 230V | 420 | 303 | 100 | 7,2 | | | | |
| ZHF4865.PFC | 48 | 65 | 180 | 420 | 180 | 660 | 180 | 780 | 180 | 660 | 4,4 | 20A 230V | 420 | 303 | 100 | 7,2 | | | | |
| ZHF7230.PFC | 72 | 30 | 120 | 180 | 120 | 300 | 120 | 360 | 120 | 300 | 3,1 | 13A 240V | 420 | 303 | 100 | 7,2 | | | | |
| ZHF7240.PFC | 72 | 40 | 120 | 240 | 120 | 420 | 120 | 480 | 120 | 420 | 4,1 | 20A 240V | 420 | 303 | 100 | 7,2 | | | | |
| ZHF8030.PFC | 80 | 30 | 120 | 180 | 120 | 300 | 120 | 360 | 120 | 300 | 3,4 | 20A 240V | 420 | 303 | 100 | 7,2 | | | | |
| ZHF8040.PFC | 80 | 40 | 120 | 240 | 120 | 420 | 120 | 480 | 120 | 420 | 4,5 | 20A 240V | 420 | 303 | 100 | 7,2 | | | | |
| Three-phase | | | | | | | | | | | | | | | | | | | | |
| Code | Output | | Rechargeable batteries | | | | | | | | Kw | Mains voltage [A] 400V | Dimensions (mm) | | | Weight (Kg) | | | | |
| | | | Lead-acid | | | | Sealed | | | | | | L ↔ | W ↗ | H ↑ | | | | | |
| | 8h | | 11h | | 13h | | 12h | | | | | | | | | | | | | |
| | Ah/C5 min | Min | Max | Ah/C5 min | Min | Max | Ah/C5 min | Min | Max | Ah/C5 min | | | Min | Max | | | | | | |
| ZHF24120T | 24 | 120 | 360 | 780 | 360 | 1200 | 360 | 1400 | 360 | 1200 | 4,0 | 7,8 | 540 | 340 | 130 | 10,9 | | | | |
| ZHF24240T | 24 | 240 | 720 | 1400 | 720 | 2400 | 720 | 2800 | 720 | 2400 | 8,0 | 15,6 | 591 | 435 | 265 | 21,5 | | | | |
| ZHF3680T | 36 | 80 | 300 | 480 | 300 | 840 | 300 | 960 | 300 | 840 | 4,0 | 7,8 | 540 | 340 | 130 | 11,3 | | | | |
| ZHF36120T | 36 | 120 | 360 | 780 | 360 | 1200 | 360 | 1400 | 360 | 1200 | 6,0 | 11,5 | 540 | 340 | 130 | 11,5 | | | | |
| ZHF36160T | 36 | 160 | 600 | 960 | 600 | 1600 | 600 | 2000 | 600 | 1600 | 8,0 | 15,6 | 540 | 340 | 130 | 15,8 | | | | |
| ZHF36240T | 36 | 240 | 720 | 1400 | 720 | 2400 | 720 | 2800 | 720 | 2400 | 12,0 | 23,0 | 591 | 435 | 265 | 23,0 | | | | |
| ZHF4865T | 48 | 65 | 180 | 420 | 180 | 660 | 180 | 780 | 180 | 660 | 4,3 | 8,5 | 540 | 340 | 130 | 10,9 | | | | |
| ZHF4880T | 48 | 80 | 300 | 480 | 300 | 840 | 300 | 960 | 300 | 840 | 5,3 | 10,5 | 540 | 340 | 130 | 11,3 | | | | |
| ZHF48120T | 48 | 120 | 360 | 780 | 360 | 1200 | 360 | 1400 | 360 | 1200 | 8,1 | 15,6 | 540 | 340 | 130 | 11,5 | | | | |
| ZHF48160T | 48 | 160 | 600 | 960 | 600 | 1600 | 600 | 2000 | 600 | 1600 | 10,6 | 21,0 | 540 | 340 | 130 | 15,8 | | | | |
| ZHF48240T | 48 | 240 | 720 | 1400 | 720 | 2400 | 720 | 2800 | 720 | 2400 | 16,2 | 31,2 | 591 | 435 | 265 | 23,0 | | | | |
| ZHF7280T | 72 | 80 | 300 | 480 | 300 | 840 | 300 | 960 | 300 | 840 | 8,0 | 15,6 | 540 | 340 | 130 | 12,3 | | | | |
| ZHF72120T | 72 | 120 | 360 | 780 | 360 | 1200 | 360 | 1400 | 360 | 1200 | 12,0 | 23,4 | 540 | 340 | 130 | 15,8 | | | | |
| ZHF72160T | 72 | 160 | 600 | 960 | 600 | 1600 | 600 | 2000 | 600 | 1600 | 16,0 | 31,2 | 591 | 435 | 265 | 24,7 | | | | |
| ZHF8080T | 80 | 80 | 300 | 480 | 300 | 840 | 300 | 960 | 300 | 840 | 8,5 | 16,0 | 540 | 340 | 130 | 12,3 | | | | |
| ZHF80120T | 80 | 120 | 360 | 780 | 360 | 1200 | 360 | 1400 | 360 | 1200 | 12,8 | 24,0 | 540 | 340 | 130 | 15,8 | | | | |
| ZHF80160T | 80 | 160 | 600 | 960 | 600 | 1600 | 600 | 2000 | 600 | 1600 | 17,6 | 32,0 | 591 | 435 | 265 | 24,7 | | | | |

For details refer to the data sheets on our website
Dimensions tolerance +/- 2 - 4 mm

To consult the terminals, go to page 27

Conventional battery chargers MGX-MORI



MGX Memory Charger

STABILIZED: optimal charge even in presence of wide fluctuations in the mains voltage (min. 185V - max. 265V).

TRADITIONAL: these devices are of a traditional type (not high frequency).

EASY: the charge cycle takes place automatically, by simply connecting the battery.

The microprocessor checks the battery discharge level and the charge times.

DATA MEMORY: the main information related to charge cycles is stored in the battery charger memory. Then, the user's behaviour during charge/discharge phases can be easily retraced and warranty costs are dramatically reduced.

FLEXIBLE: with the MP TOP II programmer it is possible to set the battery charger for the charge of both lead-acid and sealed batteries (GEL, AGM).

RELIABLE: 2 years warranty

- The nominal output current is CONSTANT CURRENT.
- The manufacturer guarantees the charge of recommended capacities, within 10-13 hours, with 80% of batteries discharge.
- Lower discharges involve lower charging time.
- The programming of these devices allows them to be adapted for the charge of any battery brand.
- All devices are equipped with SCHUKO 16A mains plug.
- All devices are supplied with output cables, but WITHOUT the connector to the battery, supplied on request.



For further details on the mode, see general warranty conditions on our website

| Code | Output | | Rechargeable batteries | | | | Kw | Mains voltage [A] 230V | Dimensions (mm) | | | Weight (Kg) | |
|---------|--------|----|------------------------|-----------|-----------|------------------|-----|------------------------|-----------------|-----|-----|-------------|-----------|
| | V | A | Cycle | Lead-acid | | Sealed (GEL/AGM) | | | L ↔ | W ↗ | H ↑ | | |
| | | | | Ah/C5 min | Ah/C5 max | Ah/C5 min | | | | | | | Ah/C5 max |
| MGX1210 | 12 | 10 | IWoU/IUoU | 100 | 120 | 80 | 100 | 0,18 | 1,3 | 305 | 160 | 127 | 5,6 |
| MGX1215 | 12 | 15 | IWoU/IUoU | 130 | 180 | 110 | 150 | 0,29 | 1,9 | 305 | 160 | 127 | 6,2 |
| MGX2410 | 24 | 10 | IWoU/IUoU | 100 | 120 | 80 | 100 | 0,36 | 2,5 | 305 | 160 | 127 | 7,4 |
| MGX2415 | 24 | 15 | IWoU/IUoU | 130 | 180 | 110 | 150 | 0,54 | 3,7 | 305 | 160 | 127 | 9,1 |
| MGX2420 | 24 | 20 | IWoU/IUoU | 190 | 240 | 160 | 200 | 0,72 | 5,0 | 305 | 160 | 127 | 12,0 |
| MGX2425 | 24 | 25 | IWoU/IUoU | 250 | 300 | 210 | 250 | 0,90 | 6,0 | 385 | 200 | 147 | 13,8 |
| MGX2430 | 36 | 30 | IWoU/IUoU | 310 | 360 | 260 | 300 | 1,10 | 7,4 | 385 | 200 | 147 | 18,5 |
| MGX3620 | 36 | 20 | IWoU/IUoU | 190 | 240 | 160 | 200 | 1,10 | 7,4 | 385 | 200 | 147 | 15,8 |
| MGX3625 | 36 | 25 | IWoU/IUoU | 250 | 300 | 210 | 250 | 1,40 | 9,3 | 385 | 200 | 147 | 18,4 |

For details refer to the data sheets on our website
Phase 1 | V 185/265 | Hz 50/60

Dimensions: 305 × 160 x h 127 mm | 385 × 200 x h 147 mm

Battery regenerator

Battery Regenerator



Your battery will no longer be a mystery!

How many batteries did you replace under commercial warranty?

How many batteries did you have to throw because they were old?

How many batteries did you replace without knowing if they could still be used?

Cod. REGEN.01 - Weight 7kg
Dim. 300 × 200 × 460h

The BATTERY REGENERATOR allows you to work independently and to eliminate these costs. It pays itself in 6 months of actual work!

The innovative device for the treatment of lead-acid batteries, modular, is now available to everyone! The integrated solution of the discharge + multi-voltage charger allows to carry out a variety of activities in a simple and automatic way. The device is portable and it is possible to perform tests directly by the customer or during the installation. The data collected will be easily transferred to a PC in order to elaborate and print.

What kind of batteries can you test with Battery Regenerator?

- 12 Volt lead acid starter batteries (MF and SMF).
- 12 Volt AGM starter batteries.
- 6 Volt or 12 Volt AGM stand-by batteries.
- 6/8/12 Volt lead acid batteries (both tubular and flat), for cycle use.
- 6/8/12 Volt AGM batteries for cycle use.

How does Battery Regenerator work?

Three simple actions are needed and the rest happens automatically:

- Choose the activity from the 5 options.
- Set the data of the battery to be tested.
- START

What can you do with Battery Regenerator?

- Equalize/balance new batteries before the installation.
- Refresh the batteries in stock, recovering the original features.
- Regenerate batteries used incorrectly.
- Check battery capacity and status: discharge in 20h, 5h and 2h.
- Cycle new batteries to check their performance over time: 20h, 5h and 2h.

Who needs Battery Regenerator?

To all the companies that work with modular batteries:

- Dealers/renters of cleaning machines.
- Resellers/renters of scissor lifts.
- Resellers/renters of golf cars and/or electric vehicles for touristic and holiday resorts.
- Resellers/renters of camper.
- Resellers of lead batteries in general.
- Maintainers/ installers of batteries for continuity groups, UPS and telephone switchboards.
- Installers/maintainers of boats.
- Resellers/maintainers of vehicles for elderly and disabled.



For further details on the mode, see general warranty conditions on our website

Battery regenerator



Minimum requirements:
Windows 10 32/64 Bit versions
or Android min. 8.0



1. Check the battery capacity and status

- It can be done on a new battery, to check the correctness of the declared data, and also on an used battery to check its status/conditions.
- It consists of a fully automatic charge/discharge/charge cycle.
- The discharge current is constant.
- The discharge cycle involves 100% battery discharge.
- Depending on the type of battery and the application, the discharge capacity can be checked in 20 hours, 5 hours and 2 hours.
- The report with the result can be saved in PDF and printed.
- Duration varies by test, between 12 hours and 48 hours approx.

| Customer U.B.S. Union Battery Service | | Voltage 12 V | | Serial number 0000005632 | | Capacity Test Result Nr. 2 | |
|---|---------|------------------------|-----|------------------------------------|------|--------------------------------------|--|
| Battery type AGM | | Brand Zenith | | Model ZL120175 | | | |
| Capacity | C2 | C5 | C20 | % C2 | % C5 | % C20 | |
| Nominal | 70 Ah | | | | | | |
| Measured | 70,8 Ah | | | 101 % | | | |

2h discharge capacity value declared by the manufacturer

Detected value

2. Charging and discharging cycle sequence ("cycling" battery)* *Do not carry out this operation on starter lead acid batteries

- It is generally made on a new battery and for cyclic use (DEEP-CYCLE) in order to check its behaviour over time.
- It is possible to set up to 10 charge/discharge cycles. The sequence will be totally automatic.
- The discharge current is constant.
- The discharge cycle involves discharging the battery 100%.
- Depending on the type of battery and the application, the discharge and capacity can be checked 20h, 5h and 2h.
- The report with the result can be saved in PDF and printed.
- Duration varies according to the number of cycles set, keeping in mind that each cycle can be about 15-35 hours.

| Customer U.B.S. Union Battery Service | | Voltage 12 V | | Serial number 0000000005 | | Capacity Test Result Nr. 3 | |
|---|----|------------------------|-----|------------------------------------|------|--------------------------------------|--|
| Battery type Piombo/Acido | | Brand Trojan | | Model TJ120145 | | | |
| Capacity | C2 | C5 | C20 | % C2 | % C5 | % C20 | |
| Nominal | | 120 Ah | | | | | |
| First cycle | | 110,9 Ah | | | 92 % | | |
| Last cycle | | 116,6 Ah | | | 97 % | | |

Capacity value declared by the manufacturer

Detected value after the first cycle

Detected value after the last cycle

Battery performance graph

Battery regenerator

3. Equalize/balance new batteries

- The activity is absolutely necessary to guarantee a longer life of the batteries, especially when installing multiple units connected together in series or in parallel.
- The aim is to make the batteries "homogeneous" with each other, especially if they are produced at different times and stored in different ways.
- It remains essential that the batteries must still be of the same brand and model.
- The cycle lasts about 7 - 20 hours.
- No report is provided.

4. Refresh the batteries in stock

- This is a charger/micro discharge/charge sequence specially developed to try to restore the original characteristics, on batteries that have been in stock for a certain time.
- The cycle lasts about 5 - 10 hours.
- No report is provided.

5. Regenerate batteries

- Warning: regeneration treatment is absolutely recommendable even on batteries in use, still working, in order to prevent deterioration: "Regenerate in time and save your time". The earlier it is done, the greater the success rate will be.
- It can be applied on any type of used lead battery.
- NOT all batteries subjected to treatment will give a positive result.
- It is preferable for AGM batteries to carry out a capacity test after a few days from the end of the regeneration process, which has a positive result.
- It uses a specific algorithm that manages the sequence of charges/discharges.
- The algorithm adapts to the behaviour of the battery during the process.
- Duration varies from 24 hours to 120 hours.
- The result report can be saved in PDF and printed.

Capacity value declared by the manufacturer

Detected value before the regeneration

Detected value after the regeneration

| Customer U.B.S. Union Battery Service | | Voltage 12 V | | Serial number 0020200268 | | Regeneration Result Nr. 3 | |
|---|---------|------------------------|------|------------------------------------|--------|-------------------------------------|--|
| Battery type AGM | | Brand Zenith | | Model ZL120175 | | | |
| Capacity | C5 | C20 | % C5 | % C20 | Result | | |
| Nominal | 65 Ah | 75 Ah | | | | | |
| Initial | 45,6 Ah | | | | ✓ | | |
| Final | 63,5 Ah | | 97 % | | | | |
| Evaluation | | | | | | Battery: OK | |

For details refer to the data sheets on our website

Multifunction battery chargers

Power Switch Multisystem

HIGH FREQUENCY SINGLE-PHASE MULTI-VOLTAGE BATTERY CHARGER, IDEAL FOR "REFRESH" CHARGES

MULTISYSTEM is a battery charger suitable for any type of batteries (both traction and starter, sealed or lead acid).
It is easy to program through the keyboard and the display.

The operator sets three charging cycle parameters ("IU" cycle):

- maximum battery voltage during the charging phase
- constant current
- time (max. 50 hours)

It offers great flexibility advantages:

- it is possible to "refresh" full pallets of batteries connecting them in series or in parallel, according to customer preferences
- it is possible to recharge 6V, 8V, 12V, 24V, 36V, 40V, 48V batteries and any intermediate voltage value
- it is possible to use it as a replacement for other battery chargers (KEYBOARD BLOCK function)
- it can be easily carried to the customer in order to try to recover "sulphated" batteries

Single-phase supply:

- correct charging even when supply voltage fluctuates from 185V to 265V frequency 50/60Hz

Two models are available:

- code: **PSW.MS.1**
- programmable voltage: from 6V to 32V
- programmable constant current: from 3A to 40A
- code: **PSW.MS.2**
- programmable voltage: from 12V to 64V
- programmable constant current: from 3A to 30A



For further details on the mode, see general warranty conditions on our website

| Code | V | | Ioc programmable output step 1A | | | Min. voltage for charging | Weight (Kg) | Dimensions (mm) | | |
|----------|------|------|---------------------------------|-----------------|-------------------|---------------------------|-------------|-----------------|-----|-----|
| | Min. | Max. | Min. | Max. | IDC out programm. | | | L ↔ | W ↗ | H ↑ |
| PSW.MS.1 | 6V | 32V | 3A | from 40A to 29V | 35A up to 29V | 3,5V | 4,5 | 295 | 220 | 110 |
| PSW.MS.2 | 12V | 64V | 3A | from 30A to 58V | 25A up to 58V | 7,0V | 4,5 | 295 | 220 | 110 |

For details refer to the data sheets on our website



It is supplied with battery connection clamps and instruction manual with hints on how to use it.

Academy project



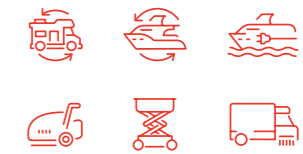
CONTACT YOUR DISTRIBUTOR

Technical training

Sign up for our courses of technical training

Three course levels:

- **1st LEVEL:** Choice of battery and battery charger
- **2nd LEVEL:** Correct installation with practical examples
- **3rd LEVEL:** Problem solving



PRODUCT SECTORS

- > Nautical
- > Camping
- > Cleaning
- > Aerial platforms

Hi, I'm Tony!
Your UBS
virtual assistant

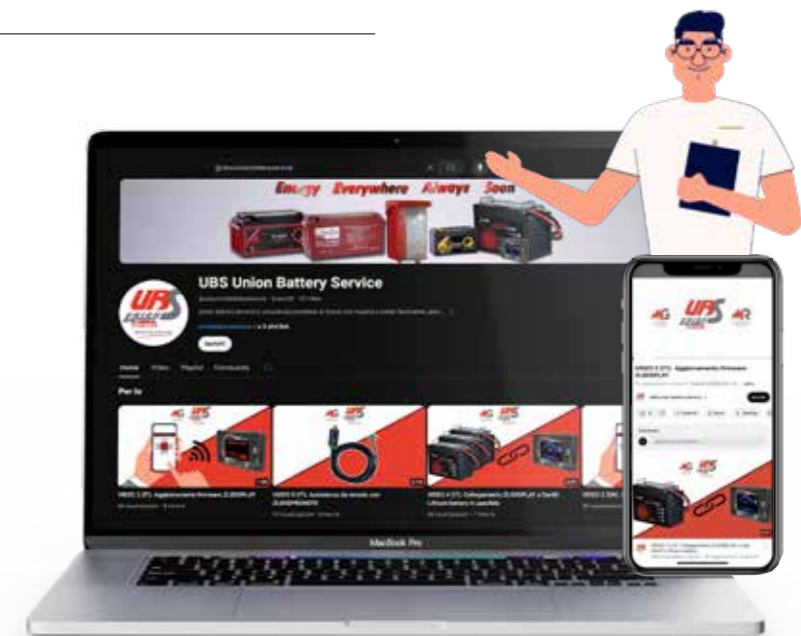
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And stay updated with our video tutorials.



Accessories

> DC CONNECTORS (battery connection)

| Code | Model | Code | Model | Code | Model |
|---|-------------------------------|---|------------------------------|--|-----------------------------------|
|  00200001 | SB50 50A Battery Grey plug |  00200040 | SB175 175A Battery Grey plug |  00200084 | DIN 320A male Battery plug |
|  00200002 | SB50 50A Battery Red plug |  00200042 | SB175 175A Battery Red plug |  00200200 | Schaltbau male LV80 Battery plug |
|  00200030 | SBE160 160A Battery Red plug |  00200043 | SB175 175A Battery Blue plug |  00200201 | Schaltbau male LV160 Battery plug |
|  00200033 | SBE160 160A Battery Grey plug |  00200082 | DIN 80A male Battery plug |  00200202 | Schaltbau male LV320 Battery plug |
|  00200039 | SB120 120A Battery Red plug |  00200083 | DIN 160A male Battery plug |  00200150 | FT80 EURO 80A male Battery plug |




> POLE PROTECTION

| | | | | |
|---|---|---|-------------|---------------------|
|  |  |  | Code | Kit quantity |
| CPM6 | CPM8 | CPMORS | CPM6 | 10 pairs |
| | | | CPM8 | 10 pairs |
| | | | CPMORS | 10 pairs |

> AUTOMATIC REFILLING CAPS

| | | | | |
|---|---|---|-------------|-----------------------------------|
|  |  |  | Code | Refilling CAPS |
| 00300000 | 00300005 | 00300120 | 00300000 | Cap automatic refilling "SCREW" |
| | | | 00300005 | Cap automatic refilling "BAYONET" |
| | | | Code | CAPS accessories |
| | | | 00300120 | Floating D.22 H.39 |

> ADAPTERS

| | | | | | |
|---|---|---|-------------|-------------------------------|---------------------|
|  |  |  | Code | Suitable for: | Kit quantity |
| KIT.AP.M6 - KIT.AP.M8 | | KIT.AP.STUD | KIT.AP.M6 | terminal M6 | 10 pairs |
| | | | KIT.AP.M8 | terminal M8 | 10 pairs |
| | | | KIT.AP.STUD | screw terminal M8 | 1 pair |
| | | | | Adapters TROJAN "AP" positive | 1 piece |
| | | | | Adapters TROJAN "AP" negative | 1 piece |

Accessories

> BUS BAR



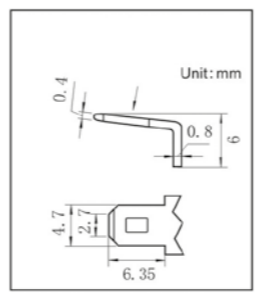
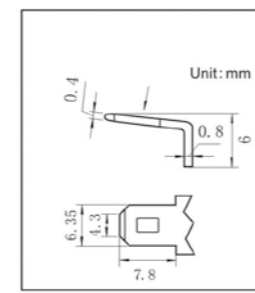
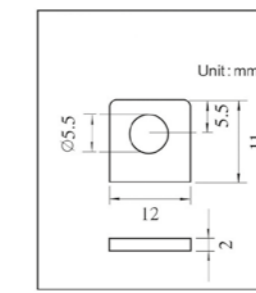
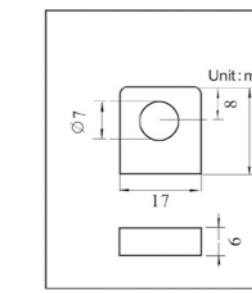
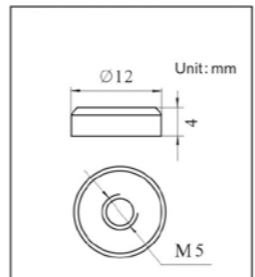
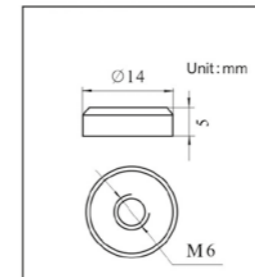
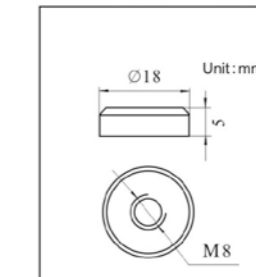
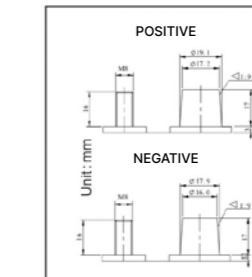
| Code | Description |
|--------------|----------------------------|
| BUSBAR4PM8N | Bus Bar 4P M8 250 A BLACK |
| BUSBAR4PM8R | Bus Bar 4P M8 250 A RED |
| BUSBAR6PM10N | Bus Bar 6P M10 300 A BLACK |
| BUSBAR6PM10R | Bus Bar 6P M10 300 A RED |

> DISTILLED WATER



| Code | Description |
|----------|---------------------|
| ACDEMR25 | 25 lt Tank with tap |

> TERMINALS FOR ZENITH BATTERIES

| F1 | F2 | F3 | F25 |
|---|---|---|---|
|  |  |  |  |
| M5 | M6 | M8 | DT |
|  |  |  |  |

Practical advice on lead-acid batteries

- 1. ALWAYS** choose the battery suitable for the application (choose from the available ranges) and set the model depending on use.
 - Certainty of the battery duration over time.
 - Any problems are covered by the guarantee.

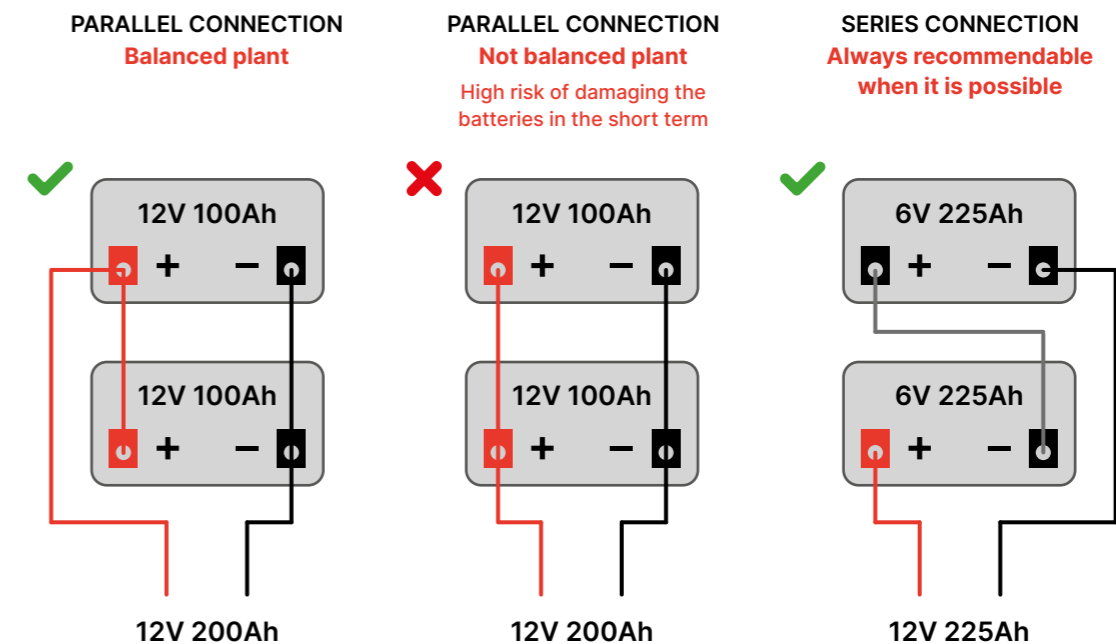
On the contrary, wrong choices are NOT covered by the warranty and affect the battery life.
- 2. ALWAYS** use the batteries in adequately ventilated places with temperatures compatible with the characteristics of the batteries (see data sheet).
- 3. CONNECTION OF TWO BATTERIES IN SERIES**
You get a battery with the same capacity, but with double voltage.
 - ⚠ With the connection in series:
 - DON'T use batteries of different brands or ages.
 - Check periodically (3-4 times a year) the OCV (Open Circuit Voltage) of the individual batteries. Any problems on a single battery can have an impact on the other batteries.
 - Perform the equalization.
 - Use cables with adequate section.
 - Alternate the position of the batteries at least 2-3 times a year.
- 4. CONNECTION OF TWO BATTERIES IN PARALLEL**
You get a battery with the same voltage, but with double the capacity.
 - ⚠ Using batteries in parallel can be dangerous, then, if necessary, interface with U.B.S. Union Battery Service
- 5.** Correctly size batteries according to their discharge current (see battery data sheets): discharge current beyond the limits indicated will immediately invalidate any warranty.
- 6.** Carefully tight the poles screws, according to what follows:

| | |
|-----------------------------|------------------------------|
| > M5 terminal: 5,9/6,1 Nm | > M8 terminal: 22,5/23,2 Nm |
| > M6 terminal: 11,9/12,1 Nm | > M10 terminal: 24,5/27,0 Nm |

Overheating of the poles due to incorrect tightening is not covered by the warranty.
- 7.** AVOID any short circuit between the battery poles.
- 8.** Use chargers with suitable charging curves (see battery data sheets). In AGM deep-cycle applications the IU1a charge cycle is recommended if more than two batteries are connected in series. In STAND-BY applications the use of pulse hold charging cycles is recommended. NEVER interrupt the charging cycle. Incomplete recharges will void the warranty.
- 9.** Periodically discharge the batteries (better once a month) completely (up to 80%).
- 10.** ALWAYS recharge the batteries immediately after discharge.

Practical advice on lead-acid batteries

- 11.** For long periods of disuse, recharge the batteries periodically (at least once a month).
- 12.** Deep-cycle batteries may only be used once per day, 220 cycles per year. Any other use, unless agreed in writing, will invalidate the warranty.
- 13.** In ALL lead acid batteries (YUASA), the electrolyte level must be checked at least monthly. The plates must be always completely submerged. If necessary, add only distilled water after recharging. If the battery is equipped with an automatic topping up system, it is important to disassemble it and remove any deposits at least once a year. At the same time, check that the floats are working properly.
- 14.** Prevent and remove any oxidation on the poles. It is recommended the use of rubber pole covers.
- 15.** In our website www.unionbatteryservice.it all the general warranty conditions are available.



Refresh charges FOR BATTERIES IN STOCK

Storage temperature

Between 10°C and 20°C
Between 20°C and 30°C
Between 30°C and 40°C

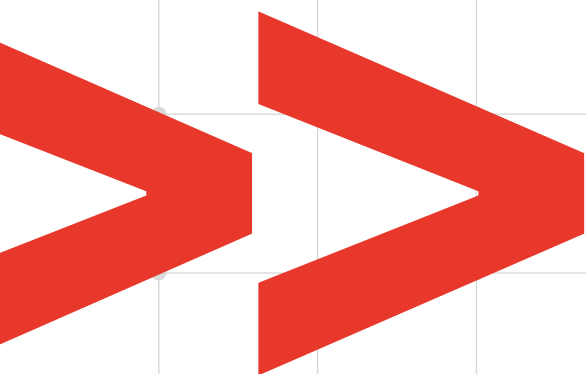
(ZL, ZGL, ZPC, ZLS, ZLM, ZGEL)

Every 9 months
Every 6 months
Every 3 months

(YUASA)

Every 3 months
Every 2 months
Every month

@ f y d in



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Union Battery Service s.r.l. Unipersonale
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Tel. +39 030 9904570

www.unionbatteryservice.it