ABYSS BATTERY®

MARINE LITHIUM POWER SYSTEMS · LARGO, FLORIDA

12V DUAL-PURPOSE LITHIUM COMPATIBILITY CHART

ENGINE STARTING · HOUSE POWER · 12V TROLLING MOTORS · ELECTRONICS

BOAT OWNERS | MARINE INSTALLERS | OEM PARTNERS | DEALERS

Which ABYSS® 12V dual-purpose battery starts which outboard, how long it runs your electronics, trolling motor and anchors, and how to wire, fuse, charge and monitor it — with the engine makers' published battery requirements and their positions on lithium starting.

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Document ABYSS-12V-COMPAT · Rev 1.0 · October 2026 · Supersedes all previous versions

POWER YOUR PURSUIT.

WHICH BATTERY DO I NEED?

Four checks that settle almost every 12V battery question — in the order an installer asks them.

1 · STARTING

Compare the engine maker's battery requirement with the battery's cranking rating: **800 A** on the 12V 60Ah, **1,200 A** on the 120–460Ah (300 ms peak — not a lead-acid CCA / MCA test). Lithium holds about 13 V through its discharge, so the engine cranks as hard at the end of the day as at the start. Pages 4–5 list every major outboard brand's published requirement and lithium position.

2 · HOUSE LOADS

Add the amps of everything switched on and multiply by hours. All five batteries deliver their full rated capacity (lead-acid should only be cycled to ~50 %), with **150 A** (60Ah) or **200 A** continuous — enough for a 2,300 W inverter. The 12 V low-voltage cut-off holds back an **Emergency Power Reserve** so house loads can never leave you unable to start. Runtime planner on page 7.

3 · FIT

Standard case sizes — **22NF, Group 24, GC2, Group 31, 8D** — with M8 terminals and ABYSS AB-G trays, so each one drops into the compartment it replaces at roughly a third of the weight. Case sizes are nominal: measure the compartment before ordering.

4 · MONITORING

Every model reports voltage, state of charge, current, temperature and diagnostics to the ABYSS app over Bluetooth. The **206Ah and 460Ah add NMEA 2000®**: plug into the backbone and the house bank appears on the Garmin®, Simrad® or Raymarine® display at the helm.

QUICK MATCH — from the ABYSS 12V catalog; confirm starting on pages 4–5, runtime on page 7

BOAT / JOB	START WITH	STEP UP TO	WHY
Dedicated starter · one outboard · skiffs, jon, jet & small CCs	**12V 60Ah** 22NF	**12V 120Ah** (large outboards, twins)	800 A cranking, 14.6 lb; house loads light
All-day start + house · bay, bass & flats boats, single-engine CCs	**12V 120Ah** Group 24	**12V 150Ah** (long days, big screens)	Starts the engine and runs electronics, livewells and stereo from one Group 24
Overnight house battery · center consoles & offshore boats	**12V 150Ah** GC2	**12V 206Ah** (see it at the helm)	Radar, pumps, refrigeration on long runs; Bluetooth monitoring
NMEA 2000 house bank · CCs & bay boats with a network	**12V 206Ah** Group 31	2 × 206Ah in parallel (412 Ah)	State of charge, volts and amps on the chartplotter
Gyro, A/C, chill plates, inverter · large CCs, sportfish, cruisers	**12V 460Ah** 8D	2 × 460Ah in parallel (920 Ah, 400 A)	Carries the boat for hours or days; NMEA 2000 + Bluetooth
12V trolling motor (55 lb class) on its own battery	**12V 120Ah** Group 24	**12V 206Ah** (all-day, strong current)	50 A full throttle → 2.4 h / 4.1 h; typical mixed day 8–14 h
24V / 36V trolling motor	**ABYSS 24V / 36V** single-battery lines	2–3 × 12V 120Ah in series	One battery, one input, one charger — see the trolling motor chart

Start and house on one battery, or two? One 60Ah or 120Ah starts the engine, runs the boat and recharges from the alternator — the BMS reserve guarantees the restart. Boats with radar, livewells and a stereo running all day are better served by a dedicated start battery (60Ah) plus a house bank (120–460Ah) joined by an ACR or DC-DC charger: house loads can never flatten the start battery, and either battery starts the engine in an emergency.

The one-line rule for installers and OEM spec writers: match the cranking rating to the engine maker's requirement, size amp-hours from the house loads and hours (keep a 20 % margin), keep the continuous draw at or below the BMS rating (150 A / 200 A), fuse every positive within 7 in of the terminal, and charge with a 12 V lithium profile (14.4 V ± 0.2, no float needed). Every pairing in this guide meets those rules.

WORKS WITH — chargers, networks and systems verified in this guide

OUTBOARD ALTERNATORS 35–150 A · AB-CRG-12V40A · ABYSS MULTI-BANK CHARGERS · SHARK™ 12 V SIDE · NMEA 2000® (206 / 460AH) · ABYSS BATTERY PRO APP · 12V TROLLING MOTORS ≤ 150 A · POWER-POLE® · TALON™ · RAPTOR™ · INVERTERS TO 2,300 W

THE LINEUP AT A GLANCE — full specifications on page 3

DUAL PURPOSE · GROUP 22NF
AB-12V60-BT
60 AH
800 A cranking · 150 A cont. · 14.6 lb

DUAL PURPOSE · GROUP 24
AB-12V120-BT
120 AH
1,200 A cranking · 200 A cont. · 24.3 lb

DUAL PURPOSE · GROUP GC2
AB-12V150-BT
150 AH
1,200 A cranking · 200 A cont. · 34.4 lb

DUAL PURPOSE · GROUP 31
AB-12V206-BT
206 AH
1,200 A cranking · 200 A cont. · 44.0 lb

DUAL PURPOSE · GROUP 8D
AB-12V460-BT
460 AH
1,200 A cranking · 200 A cont. · 87.0 lb

ABYSS 12V DUAL-PURPOSE LINEUP

Five $LiFePO_4$ dual-purpose batteries — specifications as published in the ABYSS 12V Catalog 1.1-2026. All models start engines and run house loads; keep start and house banks separate in normal use.

12V 60Ah



9.02 × 5.43 × 8.19 in · 14.6 lb
Group 22NF · AB-G22NF tray

12V 120Ah



10.24 × 6.62 × 8.23 in · 24.3 lb
Group 24 · AB-G24 tray

12V 150Ah



10.24 × 6.77 × 9.65 in · 34.4 lb
Group GC2 · AB-GC2 tray

12V 206Ah



13.58 × 7.48 × 9.65 in · 44.0 lb
Group 31 · AB-G31 tray

12V 460Ah



20.67 × 10.63 × 8.66 in · 87.0 lb
Group 8D · AB-G8D tray

SPECIFICATION	12V 60Ah	12V 120Ah	12V 150Ah	12V 206Ah	12V 460Ah
SKU	**AB-12V60-BT**	**AB-12V120-BT**	**AB-12V150-BT**	**AB-12V206-BT**	**AB-12V460-BT**
Case / group size	Group 22NF	Group 24	Group GC2	Group 31	Group 8D
Rated capacity (12.8 V)	60 Ah	120 Ah	150 Ah	206 Ah	460 Ah
Energy	768 Wh	1,536 Wh	1,920 Wh	2,637 Wh	5,888 Wh
Cell type	Cylindrical $LiFePO_4$ (EVE 20Ah)	Prismatic $LiFePO_4$ (EVE 122Ah)	Prismatic $LiFePO_4$ (EVE 150Ah)	Prismatic $LiFePO_4$ (EVE 206Ah)	Prismatic $LiFePO_4$ (EVE 230Ah × 2P)
BMS	4S 150 A, Bluetooth	4S 200 A, Bluetooth	4S 200 A, Bluetooth	4S 200 A, Bluetooth + NMEA 2000	4S 200 A, Bluetooth + NMEA 2000
Max. continuous discharge	**150 A**	**200 A**	**200 A**	**200 A**	**200 A**
Cranking current (300 ms)	**800 A**	**1,200 A**	**1,200 A**	**1,200 A**	**1,200 A**
Low-voltage cut-off	12 V + reserve	12 V + reserve	12 V + reserve	12 V + reserve	12 V + reserve
Charge voltage	14.4 V ± 0.2	14.4 V ± 0.2	14.4 V ± 0.2	14.4 V ± 0.2	14.4 V ± 0.2
Standard / max charge current	30 A / 60 A	40 A / 100 A	40 A / 100 A	40 A / 100 A	40 A / 100 A
Dimensions (L × W × H)	9.02 × 5.43 × 8.19 in 229 × 138 × 208 mm	10.24 × 6.62 × 8.23 in 260 × 168 × 209 mm	10.24 × 6.77 × 9.65 in 260 × 172 × 245 mm	13.58 × 7.48 × 9.65 in 345 × 190 × 245 mm	20.67 × 10.63 × 8.66 in 525 × 270 × 220 mm
Weight	14.6 lb (6.6 kg)	24.3 lb (11.0 kg)	34.4 lb (15.6 kg)	44.0 lb (20.0 kg)	87.0 lb (39.5 kg)
Terminals	M8 studs	M8 studs	M8 studs	M8 studs	M8 studs
ABYSS tray	AB-G22NF	AB-G24	AB-GC2	AB-G31	AB-G8D
Monitoring	Bluetooth app	Bluetooth app	Bluetooth app	NMEA 2000® + Bluetooth	NMEA 2000® + Bluetooth
Low-temp heating	Yes	Yes	Yes	Yes	Yes
Emergency Power Reserve	Yes	Yes	Yes	Yes	Yes
Parallel / series	4 parallel / 4 series	4 parallel / 4 series	4 parallel / 4 series	4 parallel / 4 series	4 parallel / 4 series
Cycle life	4,000 @ 95 % DoD 6,000 @ 80 % DoD	4,000 @ 95 % DoD 6,000 @ 80 % DoD	4,000 @ 95 % DoD 6,000 @ 80 % DoD	4,000 @ 95 % DoD 6,000 @ 80 % DoD	4,000 @ 95 % DoD 6,000 @ 80 % DoD
Best for	Dedicated starter; skiffs, jon & jet boats, small CCs	All-day start + house; bay, bass & flats boats, single-engine CCs; 12V trolling	Overnight house battery; CCs & offshore boats without a network display	NMEA 2000 house bank; CCs & bay boats with a network; all-day 12V trolling	Gyro, A/C, chill plates, inverter; large CCs, sportfish, cruisers

Values from ABYSS product data (spec groups) and the ABYSS 12V Catalog 1.1-2026. Cranking current is the 300 ms peak the battery delivers — not a lead-acid CCA or MCA test figure. Weights and case sizes are nominal; measure the compartment before ordering. Shared ratings: 12.8 V nominal, IP67, charge −20 to 55 °C (heater warms cells below freezing), discharge −20 to 60 °C, storage 0 to 45 °C, self-discharge < 3 % per month, cells UL 1642 / IEC 62133 / IEC 62619, pack UN 38.3, CE, RoHS, ABYC-compliant design.

WHAT EVERY ABYSS 12V BATTERY SHARES

- **Dual-purpose by design:** every model delivers starting current and deep-cycles thousands of times, so any one can stand in for another in an emergency — keep start and house banks separate in normal use.
- **BMS:** over-charge, over-current, short-circuit, high / low temperature protection and cell balancing, plus the 12 V low-voltage cut-off that holds back the **Emergency Power Reserve** — press the button on the battery to release it and start the engine.
- **Cold-weather charging:** below 32 °F the built-in heater warms the cells from charger or alternator power before charging begins; discharge is rated to −20 °C.
- **Monitoring:** ABYSS Battery Pro app over Bluetooth on every model; the 206Ah and 460Ah also report to the NMEA 2000® network for the chartplotter.

OUTBOARD STARTING REQUIREMENTS

Engine makers' published minimum starting-battery figures by engine class, with the ABYSS 12V batteries whose cranking rating covers each class. Lithium positions by maker follow on the next page.

BRAND	ENGINE CLASS (CURRENT MODELS)	PUBLISHED MINIMUM BATTERY (OWNER'S MANUAL)	ALTERNATOR (WOT)	ABYSS 60AH 800 A	120–460AH 1,200 A	SOURCE / NOTES
Yamaha	F25 and below	245 CCA · 323 MCA · 52 min RC (application guide)	—	✓	✓	Yamaha manual figure not located; East Penn / Deka application guide
Yamaha	F30 – F115 (incl. F115B / F130A 1.8L)	380–1,150 CCA · 502–1,370 MCA · 124 min RC · 70 Ah	17–35 A	✓ ∘	✓	Owner's manual 6EK-28199-31; maximum CCA 1,150 — "do not use a battery which exceeds the maximum CCA rating"
Yamaha	F150 – F200 2.8L I-4 · F225 – F300 4.2L V6	680–1,150 CCA · 770–1,370 MCA · 160 min RC · 80 Ah	36–70 A	✓ ∘	✓	Manuals 6DV-28199-35 / 6CE-28199-36; North America: meet two of CCA / MCA / RC; lead-acid, AGM, gel, maintenance-free permitted
Yamaha	F425 / F450 XTO Offshore	700 CCA · 900 MCA · 170 min RC · 110 Ah	90 A	—	✓	Manual 6GR-28199-70
Mercury	30 – 115 FourStroke (2.1L incl. Pro XS / SeaPro)	465 MCA · 350 CCA · 70 Ah above 32 °F; 1,000 MCA · 750 CCA · 100 Ah below	≤ 35 A	✓ ∘	✓	30–60 FourStroke manual; 75–115 per SB 2002-06. Lithium on the 2.1L: SB 2022-19 (next page)
Mercury	150 FourStroke · 150 Pro XS · 150 SeaPro (3.0L)	Lead-acid: 1,000 MCA · 800 CCA · or 180 Ah; lithium: per the manual's lithium cranking table (SB 2022-19)	60 A	—	✓	Current manual prints the lithium-ion cranking battery requirements
Mercury	V6 175 – 225 · V8 200 – 300 FourStroke / Pro XS / SeaPro / Verado	AGM required: 800 MCA + 135 min RC25 (EN: 975 CCA + 65 Ah)	85–115 A	✓ (at limit)	✓	Manual 8M0175492: batteries rated to other standards "do not meet Mercury Marine requirements"; lithium per SB 2022-19
Mercury	V10 350 / 400 / 400R Verado	AGM required: 1,000 MCA + 135 min RC25 (800 CCA + 65 Ah)	150 A	—	✓	V10 manual carries no lithium wording; RELiON lists the V10 among RB100-HP-approved models
Suzuki	DF90 – DF140 (DF115A manual)	650 MCA or 512 CCA or 160 min RC or 100 Ah	40 A	✓ ∘	✓	"Dual-purpose … can be used if they meet the minimum specifications"; no deep-cycle as the main cranking battery
Suzuki	DF150 – DF250 (DF150 / DF200 / DF225 / DF250)	850 MCA or 670 CCA or 180 min RC	44–54 A	—	✓	"12 Volt cranking-type lead acid battery" specified
Suzuki	DF250AP · DF300AP · DF350A	1,000 MCA or 800 CCA or 180 min RC · 130 Ah	54 A	—	✓	"Do not disconnect battery leads from the battery while the engine is running"
Honda	BF8 – BF30	35 Ah / 270 CCA (BF8–20) · 65 Ah / 420 CCA (BF25–30)	—	✓ ∘	✓	Owner's manuals © 2016–2024
Honda	BF75 – BF100 · BF115 – BF150	65 Ah / 582 CCA (BF75–100) · 80 Ah / 622 CCA (BF115–150)	40 A (BF150)	✓ ∘	✓	Owner's manuals © 2025; "do not disconnect the battery cables while the engine is running"
Honda	BF200 – BF250 · BF350	BF350: 800 CCA at 0 °F · 229 min RC · 110 Ah (BF200–250: 800 CCA / 1,040 MCA / 110 Ah per application guide)	90 A (BF250)	—	✓	BF350 manual © 2024; BF200–250 current manual page not located
Tohatsu	MFS40 – MFS115	12 V 70 Ah · 512 CCA	—	✓ ∘	✓	Owner's manuals © 2020–2021; "do not disconnect the battery leads while the engine is operating"

✓ ABYSS cranking peak at or above the published MCA (or CCA where only CCA is published) · ✓ ∘ meets the cranking figure but the battery's amp-hours are below the maker's listed Ah · — cranking peak below the published figure · CCA = cold cranking amps at 0 °F (SAE) · MCA = marine cranking amps at 32 °F (ABYC) · RC = reserve minutes at 25 A

How to read this page. The published minimums are the engine makers' lead-acid requirements from current owner's manuals. ABYSS publishes a **300 ms cranking peak** — a different test from a 30-second MCA/CCA rating — so the check marks follow the ABYSS 12V catalog's method: compare the maker's requirement with the cranking rating. They are a sizing aid, not a manufacturer approval: where a maker requires AGM or has not approved lithium starting batteries (page 5), keep the maker's start battery and use ABYSS as the house bank. Yamaha's "maximum CCA" ceiling is a lead-acid starter-protection figure; the ABYSS peak is a 300 ms BMS limit, not a sustained CCA. Twin engines: one start battery per engine. Always confirm the exact model year in the engine manual before quoting a job.

WORKED EXAMPLE

READING A MAKER'S LINE — YAMAHA F250 (4.2L V6)	REQUIREMENT	12V 60AH	12V 120AH+
Cranking figure (compare with the ABYSS peak)	770 MCA (ABYC)	800 A ≥ 770 → ✓	1,200 A ≥ 770 → ✓
Cold cranking (CCA, SAE at 0 °F)	680–1,150 CCA	within the range	1,200 A peak — see note
Capacity / reserve	80 Ah · 160 min RC	60 Ah < 80 Ah → ∘	120 Ah ≥ 80 Ah → ✓
Chemistry permitted by the maker	lead-acid, AGM, gel, MF	lithium not listed → page 5	lithium not listed → page 5

ENGINE MAKERS' POSITIONS ON LITHIUM STARTING

What each outboard manufacturer has published about lithium starting batteries, as of October 2026, and the ABYSS installation that respects it.

MANUFACTURER	PUBLISHED POSITION (QUOTED FROM MANUALS, BULLETINS AND STATEMENTS)	WHAT IT MEANS FOR AN ABYSS® INSTALL
Mercury®	**Service Bulletin 2022-19** (Sept 2022, updated Dec 2022) approves $LiFePO_4$ cranking batteries on the 2.1L 75–115 hp, 3.0L 150 hp, 3.4L V6 / 4.6L V8 175–300 hp (FourStroke, Pro XS, SeaPro, Verado), 2.6L L6 200–400 hp, 7.6L V12 500–600 hp and all Mercury Racing outboards — "NO other engines approved at this time." Battery requirements: $LiFePO_4$ "designed for marine cranking use"; 800 A for 8 s minimum at 20 °F; peak charge acceptance 165 A for 1 min; max alternator 150 A; max charge voltage 14.8 V; RC25 135 min at 80 °F; IP67 or greater; a heater may be needed below 32 °F. Dealer-quoted warranty wording: lithium "will not void the engine warranty", but "claims for failures on the engine components caused by lithium-ion batteries may be denied." The current V10 manual still calls for AGM.	ABYSS publishes a 300 ms cranking peak and a 60–100 A maximum charge current — not the 8-second cranking test or the 165 A charge-acceptance figure in the bulletin. Ask ABYSS for engine-specific test data before quoting bulletin compliance. Otherwise the proven layout is an AGM start battery per Mercury with ABYSS as the house / trolling / electronics bank behind a DC-DC charger or an ACR with a lithium setting.
Yamaha®	Owner's manuals list the permitted chemistries — "standard lead-acid, AGM, gel-cell and maintenance-free batteries are permitted" — and lithium is not among them; manuals also warn "do not use a battery which exceeds the maximum CCA rating." A Product Information Guide line quoted by dealers reads "Lithium-ion batteries are not approved for use with Yamaha Marine products" (not located on a Yamaha-hosted page). No Yamaha-hosted lithium statement or lithium-compatible gasoline outboard was found as of October 2026.	Keep the Yamaha-permitted start battery on the engine. Run ABYSS as the house, trolling-motor and electronics bank through a DC-DC charger or an ACR with a lithium setting, and keep the alternator and the ABYSS bank from ever being isolated from each other with the engine running.
Suzuki®	Manuals specify a "12 Volt cranking-type lead acid battery" meeting the minimums; "dual-purpose … can be used if they meet the minimum specifications" and "do not use a deep-cycle battery for the main cranking battery." Suzuki's largest re-power dealer states Suzuki "only recommends using lead acid batteries" and lithium is "not factory authorized" (2022–2024). "Do not disconnect battery leads from the battery while the engine is running."	Same layout as Yamaha: a lead-acid cranking battery per Suzuki, ABYSS for house and trolling loads via DC-DC or a lithium-setting ACR.
Honda®	**"Lithium-Ion Battery Usage" statement OTR55062 (Dec 2021):** Honda electrical systems are designed for lead-acid (including AGM / gel); a lithium battery must match the motor's Ah and CCA requirements; "an appropriate battery management system must be used"; charge only with a lithium-compatible charger per the battery maker; improper installation or charging "may cause a thermal event such as a fire or explosion"; references ABYC TE-13.	Honda sets conditions rather than a prohibition: match the Ah and CCA minimums (page 4), keep the BMS-protected ABYSS battery on a lithium charge profile, and never disconnect it with the engine running ("will damage the outboard motor's electrical system").
Tohatsu®	Manuals list minimum Ah / CCA only (12 V 70 Ah, 512 CCA for MFS40–MFS115) with "do not disconnect the battery leads from battery while the engine is operating." No published lithium statement for gasoline outboards was found.	Match the Ah / CCA minimums and confirm with the Tohatsu dealer before specifying a lithium start battery.

RECOMMENDED CONFIGURATIONS BY MAKER POSITION

CONFIGURATION	START BATTERY	HOUSE / TROLLING BANK	LINK	USE IT WHEN
A · ABYSS start + house	ABYSS 12V 60 / 120Ah	ABYSS 12V 120–460Ah	ACR with lithium setting, or DC-DC	Honda (conditions met), Tohatsu after dealer confirmation, Mercury engines covered by SB 2022-19 once ABYSS test data confirms the bulletin figures
B · Lead-acid start + ABYSS house	Maker-specified lead-acid / AGM	ABYSS 12V 120–460Ah	DC-DC charger (lithium profile) — never a BOTH switch	Yamaha, Suzuki, Mercury AGM-required engines (V10, and others outside SB 2022-19) — keeps the maker's warranty position intact
C · One ABYSS does it all	ABYSS 12V 60 / 120Ah	same battery	—	Small boats on engines whose maker permits lithium starting; the Emergency Power Reserve protects the restart

MERCURY SB 2022-19 VS. ABYSS PUBLISHED FIGURES — the two gaps to close with test data

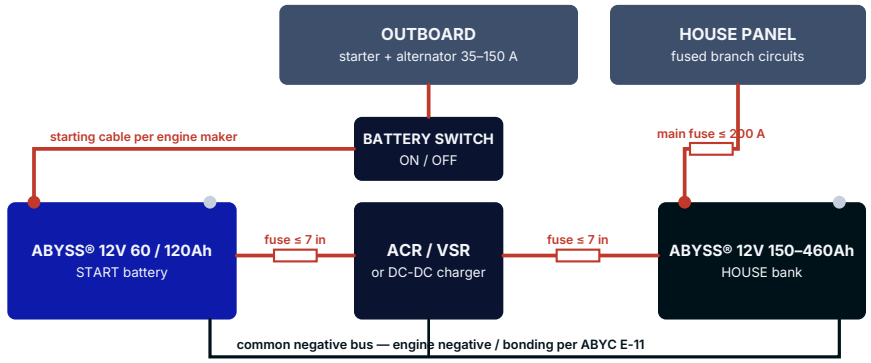
MERCURY SB 2022-19 REQUIREMENT	BULLETIN FIGURE	ABYSS 12V 120–460AH (PUBLISHED)	ABYSS 12V 60AH (PUBLISHED)
Chemistry / design	$LiFePO_4$ for marine cranking use	$LiFePO_4$ 4S dual-purpose	$LiFePO_4$ 4S dual-purpose
Cranking	800 A for 8 s min at 20 °F	1,200 A for 300 ms — 8 s test not published	800 A for 300 ms — 8 s test not published
Peak charge acceptance	165 A for 1 min	100 A max charge current	60 A max charge current
Max alternator / charge voltage	150 A · 14.8 V	14.4 V ± 0.2; BMS pauses above its limit	14.4 V ± 0.2; BMS pauses above its limit
Reserve capacity (RC25 at 80 °F)	135 min	≈ 288 min nominal (120 Ah ÷ 25 A)	≈ 144 min nominal (60 Ah ÷ 25 A)
Ingress · cold weather	IP67+ · heater may be required	IP67 · built-in heater	IP67 · built-in heater

Why makers care. Outboard charging systems were designed around lead-acid: a lithium BMS that opens while the alternator is charging leaves the regulator with no load (a load dump) and can damage the engine's electrical system, and a battery with a very high short-circuit current can over-stress a starter. Every ABYSS 12V battery charges and discharges within its BMS limits and opens the circuit only when a protection limit is reached — the alternator rules on page 6 keep it from getting there. The published OEM positions above are still the ones a dealer answers to: where lithium starting is not approved, Configuration B gives the boat every lithium benefit on the house side with the maker's own start battery on the engine.

ALTERNATOR CHARGING & BATTERY-SWITCH TOPOLOGIES

ABYSS 12V batteries accept charge directly from the engine without converters — here is what to check on the engine side, and the four system layouts from the ABYSS 12V catalog.

TYPICAL START + HOUSE SYSTEM — ABYSS 12V catalog System 2, schematic only



Alternator charges the start battery directly. The house bank charges through an ACR / VSR (same chemistry) or a DC-DC charger (any chemistry, current-limited). Either battery can start the engine in an emergency; house loads can never flatten the start battery.

WHAT YOUR OUTBOARD CAN GIVE BACK

ENGINE CLASS	ALTERNATOR (WOT)	EXAMPLES (MANUFACTURER RATINGS)	ABYSS NOTE
40–70 HP	≈ 17–20 A	Yamaha F70 · Mercury 40–60 FourStroke	Recharges a 60Ah start battery; little left for house loads underway
75–115 HP	≈ 35–44 A	Yamaha F90 / F115 35 A · Mercury 115 FourStroke 35 A · Suzuki DF115 40 A	Start + light house; ACR to a 120Ah house bank
150 HP	36–60 A	Yamaha F150 36 / 50 A · Mercury 150 FourStroke 60 A · Suzuki DF150 44 A · Honda BF150 40 A	Comfortable for start + 120–150Ah house via ACR
175–250 HP	50–90 A	Yamaha F200 I-4 50 A · F225 / F250 70 A · Mercury V6 85 A · Suzuki DF200–250 54 A · Honda BF250 90 A	Can push a discharged house bank hard — confirm sustained output or use a DC-DC charger
250–300 HP V8	70–115 A	Mercury V8 Verado 250 / 300 115 A · Yamaha F300 70 A	Exceeds the 60Ah max charge current (60 A): keep the 60Ah as a starter, house bank 120Ah+
350–450 HP V8 / V10	90–150 A	Yamaha F425 XTO 90 A · Mercury V10 Verado 350 / 400 150 A	Current-limit the house feed with a DC-DC charger (≤ 100 A per battery)

FOUR SYSTEMS FROM THE ABYSS 12V CATALOG

SYSTEM	BATTERIES	CHARGING	WHO IT SUITS
1 · One battery does it all	12V 60Ah or 120Ah	Alternator direct + AB-CRG-12V40A at the dock	Skiffs, bay & bass boats with modest electronics; the BMS reserve guarantees the restart
2 · Start + house	60Ah start + 120 / 150Ah house	Alternator → start battery → ACR / VSR or DC-DC → house; multi-bank shore charger	Boats running radar, livewells and stereo all day; either battery starts the engine in an emergency
3 · NMEA 2000 house bank	206Ah house + 60Ah per engine	Alternators → start batteries; 12V40A on the house bank, multi-bank on the starts	Center consoles: days of electronics and refrigeration, state of charge on the chartplotter
4 · Big-load house bank	1–2 × 460Ah + start battery per engine	Alternators → starts; one 12V40A per 460Ah (or a lithium charger up to 100 A per battery)	Gyro, A/C, chill plates and inverter loads, monitored at the helm

ALTERNATOR RULES

- **Voltage:** outboard regulators hold about 14.2–14.6 V — inside the 14.4 V ± 0.2 lithium profile. If an engine charges above 14.6 V the BMS pauses the charge to protect the cells and resumes when voltage falls.
- **Current:** a lithium bank accepts whatever the alternator can give, up to 60 A (60Ah) or 100 A. Ask the engine maker whether the alternator is rated to run at full output for long periods; on big house banks a DC-DC charger caps the draw.
- **Never switch the battery off while the engine is running** — opening the circuit under charge can damage the engine's charging system. Use the battery switch only with the engine off, and keep an ACR / DC-DC between banks rather than paralleling with BOTH underway.
- **Mixed chemistries:** lithium and lead-acid can share a boat as separate banks, each with its own charge profile — never in the same bank. A DC-DC charger is the clean way to feed a lithium house bank from a lead-acid start battery.
- **Cold mornings:** below 32 °F the built-in heater warms the cells from the charger or alternator before charging starts; discharge (starting) is rated to −20 °C.

CHOOSING THE LINK BETWEEN START AND HOUSE BANKS

LINK BETWEEN BANKS	HOW IT WORKS	CURRENT	CHEMISTRIES	WITH ABYSS LITHIUM
ACR / VSR (voltage-sensing relay)	Closes when it senses charging voltage, opens when it falls; passes the alternator straight through to the second bank	Full alternator output	Same chemistry both sides	Lithium rests at ≈ 13.3 V — above lead-acid combine thresholds — so choose a relay with a lithium setting or it may never separate the banks; watch the 60Ah's 60 A charge limit behind big alternators
DC-DC charger	Converts and regulates: takes power from the start battery and delivers a CC/CV lithium charge to the house bank	Current-limited, 18–60 A typical	Any mix (lead-acid start, lithium house)	The correct link where the engine maker does not approve lithium starting (Configuration B, page 5); set 14.4 V, no float or ≤ 13.6 V
Battery switch BOTH	Manually parallels the banks	Unlimited	Same chemistry only	Emergency starting only, engine off while switching; never leave lithium and lead-acid paralleled
Diode isolator	Splits the alternator through diodes	Full output	—	Not recommended: the 0.5–1 V diode drop leaves a lithium bank under-charged unless the regulator senses at the battery

HOUSE-LOAD RUNTIME PLANNER

Hours of house power by load. ABYSS lithium delivers its full rated capacity with a flat voltage curve — runtime (h) = rated Ah ÷ average draw (A); times exclude the Emergency Power Reserve.

AVERAGE DRAW	TYPICAL MIX	12V 60AH	12V 120AH	12V 150AH	12V 206AH	12V 460AH
5 A	Graph + VHF standby + a pump	12.0 h	24.0 h	30.0 h	41.2 h	92.0 h
10 A	Full electronics package	**6.0 h**	**12.0 h**	**15.0 h**	**20.6 h**	**46.0 h**
25 A	Electronics + livewells + lights + stereo	**2.4 h**	**4.8 h**	**6.0 h**	**8.2 h**	**18.4 h**
50 A	12V trolling motor, full throttle	1.2 h	2.4 h	3.0 h	4.1 h	9.2 h
100 A	Big audio + fridge + radar + pumps	0.6 h	1.2 h	1.5 h	2.1 h	4.6 h
200 A	Inverter loads (2,300 W)	— above rating	0.6 h	0.8 h	1.0 h	2.3 h

WHAT THINGS ACTUALLY DRAW — manufacturer-published figures

TYPICAL 12 V LOAD (MANUFACTURER DATA)	DRAW	TYPICAL 12 V LOAD (MANUFACTURER DATA)	DRAW
Garmin GPSMAP® 8612xsv / 8616xsv	1.3 A typ · 6 A max	Rule 1100 / 2000 GPH bilge pump	3.7 A / 8.4 A
Garmin GPSMAP® 9x19 series	4.6 A typ (60 W max)	Rule 800 / 1100 GPH livewell pump	2.8 A / 3.3 A
Simrad® NSS12 evo3S / NSX 3012	≈ 2.2 A / 2.2 A (28–30 W)	Lumitec SeaBlaze X2 underwater light	5 A (60 W) each
Simrad® NSO evo3S MPU	≤ 45 W (≈ 3.5 A)	OceanLED Sport S3124s	5.5 A each
Lowrance® HDS PRO 12 / 16	2.3 / 3.0 A typ · 3.6 / 4.1 A max	Fusion® MS-RA770 stereo head unit	up to 15 A
Humminbird® SOLIX 12 / APEX 16	2.7 / 4.3 A	Fusion® Apollo 1200 W / JL Audio M600/6 amp	53 A max / 50 A fuse
Garmin GMR Fantom™ 18x / 24x radar	4 W standby · 33 W transmit (≈ 2.6 A)	Dometic CFX3 45 / 55IM fridge	8.2 / 8.9 A rated · ≈ 1.0–1.1 Ah per hour
Simrad® HALO20+ radar	20 W typ · 29 W max (≈ 2.3 A)	Isotherm Cruise 65 fridge	275 Wh per day (≈ 0.9 Ah per hour)
Garmin LiveScope™ GLS 10	21 W typ · 58 W max (≈ 4.5 A)	Cannon Digi-Troll 10 downrigger	30 A full load
Lowrance ActiveTarget™ 2 · Humminbird MEGA Live 2	1.5 A · 1.15 A	Lewmar Pro-Series 700H windlass	35 A (500 W)
VHF (Icom M424G / SH GX1400)	0.3 A standby · 1.2–1.5 A rx · 5–5.5 A tx	Seakeeper® 1 / 2 / 3 gyro (12 V)	25–50 / 25–55 / 33–63 A running
LED courtesy / deck lighting (typical)	0.5–3 A	Inverter 1,200 / 2,000 / 3,000 VA (Victron)	7 / 8 / 20 W idle · ≈ 90 / 145 / 215 A full load

Watts converted to amps at 12.8 V; actual draw varies with settings, brightness, pump head and duty cycle. Gyro stabilizers and air conditioners vary widely — size from the maker's data. Starting surges last seconds and are covered by the cranking rating.

SIZING WORKSHEET

SIZING WORKSHEET (ABYSS 12V CATALOG)	BAY BOAT, DAY TRIP	CENTER CONSOLE, OVERNIGHT	OFFSHORE, MULTI-DAY LOADS
1. Loads × hours = amp-hours used	≈ 112 Ah used	≈ 160 Ah used	≈ 360 Ah used
2. Add a 20 % margin (÷ 0.8)	140 Ah	200 Ah	450 Ah
3. Pick the battery (shallower DoD = longer life)	**12V 150Ah** (120Ah for shorter days)	**12V 206Ah** — on NMEA 2000	**12V 460Ah**
4. Recharge	AB-CRG-12V40A: 3.9 h from empty	AB-CRG-12V40A: 5.4 h	AB-CRG-12V40A: 12.1 h · alternator underway

LITHIUM VS. LEAD-ACID, SAME CASE

ABYSS®	CASE	TYPICAL AGM IN THIS CASE	AGM RATED / WEIGHT	AGM USABLE (50 % DOD)	ABYSS USABLE / WEIGHT
12V 120Ah	Group 24	Odyssey Extreme 24M AGM	76 Ah · 57 lb	≈ 38 Ah	**120 Ah · 24.3 lb**
12V 206Ah	Group 31	Odyssey Extreme 31M AGM	103 Ah · 78 lb	≈ 52 Ah	**206 Ah · 44.0 lb**
12V 460Ah	Group 8D	West Marine 8D dual-purpose AGM	245 Ah · 161 lb	≈ 123 Ah	**460 Ah · 87.0 lb**
12V 150Ah	GC2	Trojan T105-AGM (6 V) × 2 in series	217 Ah @ 6 V · 137 lb (pair)	≈ 108 Ah	**150 Ah · 34.4 lb**

AGM figures from manufacturer / retailer data (20-h rating). Lead-acid should be cycled to about 50 % for service life and loses capacity under heavy loads (Peukert); ABYSS $LiFePO_4$ delivers its full rating at 4,000 cycles (95 % DoD) and holds ≈ 13 V until the last few percent.

12V TROLLING MOTORS & SHALLOW-WATER ANCHORS

Every 12V bow-mount and transom-mount motor draws far less than the 150 A / 200 A continuous rating — size the battery for hours, not amps. Anchors and pumps share the house bank comfortably.

BRAND	12V MOTOR / SERIES	THRUST	MFR. MAX DRAW	MFR. BREAKER	ABYSS FIT	12V 60AH HOURS @ MAX	12V 120AH HOURS @ MAX	12V 150AH HOURS @ MAX	12V 206AH HOURS @ MAX	NOTES
Minn Kota	Endura Max 55 · Edge 55 · PowerDrive 55 · Terrova 55 · Riptide Terrova 55	55 lb	**50 A**	60 A (MKR-27)	✓ YES	1.2 h	2.4 h	3.0 h	4.1 h	Max draw occurs intermittently, not continuously (Minn Kota). 8 AWG at 5 ft → 1 AWG at 25 ft
Minn Kota	Endura / Traxxis 40–45 lb	40–45 lb	**42 A**	50 A	✓ YES	1.4 h	2.9 h	3.6 h	4.9 h	Minn Kota battery guide: Group 24 “good”, 27 “better”, 31 “best”
Minn Kota	Endura 30 lb	30 lb	**30 A**	30 A (manual: 50 A)	✓ YES	2.0 h	4.0 h	5.0 h	6.9 h	
MotorGuide	Xi3-55 · Xi5-55 GPS (FW & SW)	55 lb	**52 A**	per manual	✓ YES	1.2 h	2.3 h	2.9 h	4.0 h	Breaker not on the sell sheet — size per the MotorGuide manual
MotorGuide	R3-55 (49 A) · R3-55 Digital (59 A) · X3-55 Digital (49 A)	55 lb	**49–59 A**	per manual	✓ YES	1.0 h	2.0 h	2.5 h	3.5 h	Digital variants draw the most at full throttle
MotorGuide	R3-30 · R3-40 · R3-45	30–45 lb	**36–44 A**	per manual	✓ YES	1.4 h	2.7 h	3.4 h	4.7 h	
Garmin	Force® Current @ 12 V	30 lb	**40 A cont.**	40 A (≤ 60 A)	✓ YES	1.5 h	3.0 h	3.8 h	5.2 h	10–32 V; 512 W at 12.8 V; 50 lb at 24 V (ISO 13342)
Newport	NV-Series 55 lb (incl. kayak)	55 lb	**52 A**	60 A	✓ YES	1.2 h	2.3 h	2.9 h	4.0 h	NV 36 lb: 29 A / 40 A · 46 lb: 40 A / 50 A · 62 lb: 58 A / 60 A

SHALLOW-WATER ANCHORS & HIGH-DRAW ACCESSORIES

SHALLOW-WATER ANCHOR / ACCESSORY	DRAW	FUSE / BREAKER	NOTES
Power-Pole® Blade (C-Monster 2.0)	16.4 A deploy · 29.5 A retract (pair, 10 ft)	per owner's guide	Dual-Anchor Pump 8.8 / 12.6 A; 79 Wh per 100 cycles; idle 21 mA, hibernation 6 mA
Power-Pole® Pro Series II · Sportsman II	Not published	per owner's guide	11.9–16.4 V operating; Sportsman II: 1,200 cycles per charge on a 55 Ah battery
Power-Pole® Micro	Not published	15 A (supplied)	12 V; kayak / skiff anchor
Minn Kota Talon™	30 A max	50 A breaker	Power switch ≥ 60 A; residual draw at idle — Minn Kota recommends its own battery
Minn Kota Raptor™	70 A max	50 A breaker	Hydraulic; seconds per cycle
Cannon Digi-Troll 10 downrigger	30 A full load	30 A at the battery	25 A onboard breaker; 10 / 8 / 6 AWG by run length
Lewmar Pro-Series 700H windlass	35 A (500 W)	50 A breaker	Lewmar V700: 45 A normal
Seakeeper® 1 / 2 / 3 (12 V DC)	25–50 / 25–55 / 33–63 A running	per Seakeeper	Spool-up 50 / 71 / 75 A for 30–50 min; low-voltage shutdown 11.1 V — 460Ah, or two in parallel

INSTALLER NOTES

- **Dedicated or shared?** A 12V trolling motor on its own 120Ah or 206Ah battery is the cleanest install (one breaker, one charger bank). On small boats it can share the start / house battery — the BMS reserve still protects the restart; plan the day on the table below.
- **Breaker:** size to the motor maker's rating (50–60 A), within 7 in of the battery positive, 32 VDC rating is fine on 12 V. Never size to the battery's 150 / 200 A.
- **Runtime reality:** full-throttle hours are the worst case; a mixed day averages 10–20 A, so a 120Ah battery covers 6–12 hours.
- **Anchors and pumps** draw heavily for seconds, not hours: a day of Power-Pole deployments adds only a few amp-hours. Fuse each per the maker's manual.

A TYPICAL 12V TROLLING DAY — hours by average draw

AVERAGE DRAW	TROLLING PROFILE	12V 60AH	12V 120AH	12V 150AH	12V 206AH
8 A	Spot-Lock / anchor mode, calm water	7.5 h	15.0 h	18.8 h	25.8 h
12 A	Slow trolling, light wind	5.0 h	10.0 h	12.5 h	17.2 h
18 A	Mixed day — Spot-Lock, trolling, short runs	**3.3 h**	**6.7 h**	**8.3 h**	**11.4 h**
25 A	Working wind & current	2.4 h	4.8 h	6.0 h	8.2 h

Minn Kota's own battery guide, read with lithium in mind. Minn Kota rates a Group 24 lead-acid (70–85 Ah) “good”, Group 27 (85–110 Ah) “better” and Group 31 (95–125 Ah) “best” for 12V motors — ratings that lead-acid should only use to about 50 %. The ABYSS 12V 120Ah in the same Group 24 case delivers 120 usable amp-hours at 24 lb — more than the “best” Group 31 lead-acid actually gives, at a third of the weight. The 206Ah Group 31 doubles it again.

WIRING, FUSING, PARALLEL & SERIES

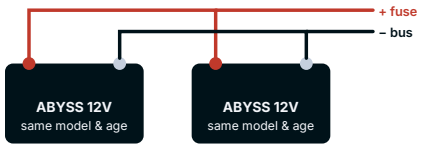
Reference for installers and OEM rigging — follow ABYC E-10 / E-11 and the engine maker's starting-circuit specification; the heavier specification always wins.

OVER-CURRENT PROTECTION

CIRCUIT	OVER-CURRENT PROTECTION	WHERE	NOTES
Battery main / house feed	Class-T, ANL or MRBF at or below the BMS rating: **150 A** (60Ah) · **200 A** (120–460Ah)	≤ 7 in (180 mm) from the terminal	Lithium can deliver thousands of amps into a short — use a fuse with an AIC rating ≥ the bank's fault current (Class-T: 20 kA)
Engine starting cable	Per the engine maker	Engine maker's cable & routing	The one exception to the 7 in rule (ABYC E-11); keep it as short as the maker allows
Sheathed / enclosed run	Same as above	≤ 72 in (1.8 m) if sheathed or in a conduit	ABYC E-11 allowance; 7 in is the default
Trolling motor circuit	50–60 A breaker per the motor maker	≤ 7 in from battery positive	Manual-reset, trip-free; ignition-protected in engine spaces
Charger leads	Factory inline fuse (multi-bank) or internal (12V40A)	Inline fuse stays near the battery	Add a battery-end fuse when extending leads (page 10)
Parallel links	One fuse per battery positive	Each battery, ≤ 7 in	Equal-length, equal-gauge links; feed from opposite corners

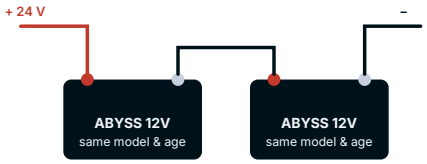
PARALLEL & SERIES

PARALLEL — UP TO 4



Capacity and current add: 2 × 206Ah = 412 Ah, 400 A.
Equal cable lengths · one fuse per battery positive · charge each to 100 % first.

SERIES — 24 / 36 / 48 V



Voltage adds; charge with a lithium charger rated for the bank voltage.
Up to four in series, identical batteries — or use the ABYSS 24V / 36V lines.

MINIMUM CABLE GAUGE (3 % DROP, TINNED COPPER)

LOAD (ONE-WAY RUN)	≤ 5 FT	≤ 10 FT	≤ 15 FT	≤ 20 FT
50 A · trolling motor / windlass	8 AWG	4 AWG	4 AWG	2 AWG
100 A · house feed, inverter 1,200 W	4 AWG	2 AWG	1 AWG	2/0 AWG
150 A · 60Ah BMS limit	4 AWG	1 AWG	2/0 AWG	3/0 AWG
200 A · inverter 2,300 W, BMS limit	2 AWG	2/0 AWG	3/0 AWG	—

Computed from conductor resistance for a 3 % drop at 12.8 V over the one-way run shown (round trip = 2 ×). Engine starting cables: per the engine maker, not this table. Never go lighter than the equipment manual.

TERMINALS, ORDER & MOUNTING

- **M8 terminals:** tinned copper ring lugs with an M8 (5/16 in) hole. Heaviest cable on the terminal face, lighter lugs above, then washer and bolt — never a washer between lug and terminal; max four lugs per stud (ABYC). Tighten with a torque wrench; fit the boots.
- **Order:** battery switch off, charger unplugged, engine off. Positive first, then negative; reverse to disconnect. Never connect or disconnect under load.
- **Restraint:** AB-G tray with strap or bracket, ≤ 1 in (25 mm) movement in any direction (ABYC E-10); cables never carry the battery. Upright, lid and vent up, above the bilge water line, away from engine heat and exhaust, accessible.
- **Cable:** tinned marine wire (UL 1426), ≤ 3 % drop at the design load, supported every 18 in (45 cm); drip loops before terminals.

INVERTERS & HIGH-CURRENT LOADS

INVERTER (CONTINUOUS)	12 V DRAW (≈ 87 % EFF.)	BATTERY	MAIN FUSE	CABLE ≤ 5 FT
1,000 W	≈ 90 A	Any model (60Ah: ≈ 40 min)	125 A	4 AWG
1,500 W	≈ 135 A	120Ah and up (60Ah at its limit)	150–175 A	4 AWG
2,000 W	≈ 180 A	120–460Ah (200 A BMS)	200 A	2 AWG
2,300 W	≈ 200 A	120–460Ah — the single-battery ceiling	200 A	2 AWG
3,000 W	≈ 260 A	Two identical batteries in parallel (400 A)	300–350 A	1/0 AWG

Draw = watts ÷ (12.8 V × 0.87). Fuse at or below the BMS rating (150 A on the 60Ah, 200 A on the rest) and never above the cable's ampacity; AIC-rated (Class-T) fuses on lithium banks.

SWITCHES, ACRS & DC-DC

- **Battery switch:** an ON/OFF per bank or a 1-2-BOTH. Never turn it OFF — or pass through OFF — with the engine running. Use BOTH for an emergency start only with lithium banks on both sides and the engine off while you switch.
- **ACR / VSR:** combines banks when the alternator raises the voltage. Lead-acid thresholds (≈ 13.0 V) sit below a resting lithium battery (≈ 13.3 V), so choose an ACR with a lithium setting or it may never separate the banks.
- **DC-DC charger:** current-limited (20–60 A), isolates the house bank's charge acceptance from the alternator, and is the only correct link between lithium and lead-acid. Set it to the 14.4 V lithium profile.
- **Bonding:** battery negatives to the engine negative / DC negative bus; no isolated grounds. Keep AC and DC grounding per ABYC E-11.

CHARGING, MONITORING & BMS REFERENCE

Shore chargers and charge times, the parameters any third-party charger must meet, NMEA 2000 and app monitoring, and what the BMS does.

CHARGER	OUTPUT	CHARGES	12V 60AH	12V 120AH	12V 150AH	12V 206AH	12V 460AH	NOTES
AB-CRG-12V40A	12 V · 40 A · 14.6 V	One battery	**1.6 h**	**3.2 h**	**3.9 h**	**5.4 h**	12.1 h	100–240 VAC, IP65, ignition protected; one per 460Ah
AB-CRG-12V-4B	4 × 12 V · 10 A	Up to 4 batteries	**6.3 h**	12.6 h	15.8 h	21.6 h ◦	48.3 h ◦	Banks isolated; LITHIUM mode per bank; lithium wake-up pulse
AB-CRG-12V/24V-3B · 12V/36V-3B / -4B	12 V banks · 10 A	2–3 × 12 V + trolling bank	**6.3 h**	12.6 h	15.8 h	21.6 h ◦	48.3 h ◦	Start + house batteries plus the 24V / 36V trolling battery on one charger
Engine alternator	14.2–14.6 V · 35–150 A	Start battery; house via ACR / DC-DC	direct	direct	direct	direct	direct	See page 6 — never switch off while running
SHARK™ AB-MDX13-60	12 V side · up to 60 A	12 V engine battery ↔ 36 V system	✓	✓	✓	✓	✓	INFINITE™ Series boats: shares power between the 36V SEAL™ and the 12 V side
Third-party 12 V lithium charger	14.4 V ± 0.2 · ≤ 60 / 100 A	Any	✓	✓	✓	✓	✓	Lithium profile, no equalize / desulfate / temperature compensation; float off or ≤ 13.6 V

Charge times from empty ≈ Ah ÷ A × 1.05; **blue** = recommended pairing, ◦ = compatible but slow (over 16 h) — choose the 40 A charger. Recharge after every trip and charge to 100 % regularly so the cells balance and the gauge recalibrates.

WHAT THE BMS DOES

BMS PROTECTION	TRIGGER	RESPONSE
Low-voltage cut-off	12.0 V	Output off; Emergency Power Reserve held back — press the button on the battery to release it and start the engine
Over-charge	Above the charge limit	Charging stops, resumes when voltage falls
Over-current	> 150 A (60Ah) · > 200 A	Output off; reset per the app / manual after the cause is found
Short circuit	Terminals or cables shorted	Output off immediately
High temperature	> 55 °C charging · > 60 °C discharging	Charge or discharge pauses until cool
Low temperature	Cells below 0 °C	Charging waits while the built-in heater warms the cells (powered by the charger)
Cell balancing	Near full charge	Automatic, in the background — charge to 100 % regularly

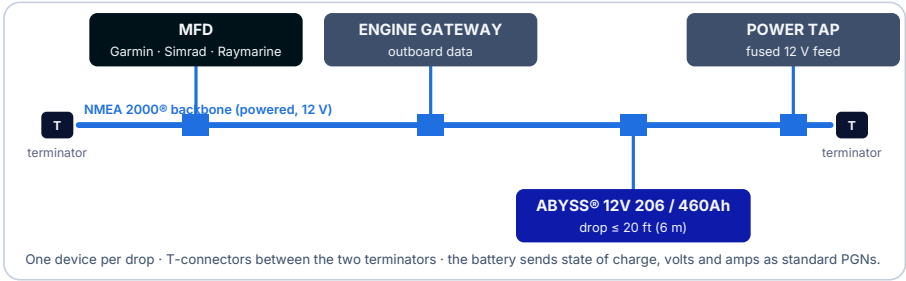
MONITORING & THE RESERVE

- **ABYSS Battery Pro app (all models):** Bluetooth — voltage, state of charge, current, temperature, cycles and diagnostics. Pair before the boat leaves the shop and confirm no protection is active; only the paired user sees the data.
- **NMEA 2000 (206Ah & 460Ah):** one drop cable (≤ 20 ft / 6 m) to a T-connector on a terminated backbone, one device per drop. State of charge, volts and amps appear on compatible Garmin®, Simrad® / Lowrance® and Raymarine® displays alongside the engine data — spot a parasitic draw or a weak alternator at a glance.
- **Emergency Power Reserve:** if the house loads run the battery to the 12 V cut-off, the output switches off with energy still in the cells. Press the reserve button, start the engine, and let the alternator recharge. Find the cause before relying on it again.
- **Storage:** 40–80 % state of charge, 0–45 °C (ideally ≤ 20 °C), battery switch off, top up every 6 months; self-discharge < 3 % per month.

CHARGE PARAMETERS FOR ANY CHARGER

PARAMETER	12V 60AH	12V 120 · 150 · 206 · 460AH
Profile	CC/CV $LiFePO_4$ (4S)	CC/CV $LiFePO_4$ (4S)
Bulk / absorption	14.4 V ± 0.2 (14.2–14.6 V)	14.4 V ± 0.2 (14.2–14.6 V)
Float	Off, or ≤ 13.6 V	Off, or ≤ 13.6 V
Standard / max charge current	30 A / 60 A	40 A / 100 A
Charge temperature	−20 to 55 °C — heater warms cells below 0 °C	−20 to 55 °C — heater warms cells below 0 °C
Not permitted	Equalize · desulfate · temperature compensation · lead-acid / AGM / gel profiles	Equalize · desulfate · temperature compensation · lead-acid / AGM / gel profiles

NMEA 2000® CONNECTION — 206AH & 460AH



One device per drop · T-connectors between the two terminators · the battery sends state of charge, volts and amps as standard PGNs.

THE LITHIUM CHARGE CYCLE — SHORE OR UNDERWAY

STANDBY
Charger on, battery detected
Below 0 °C the built-in heater warms the cells first

BULK — CC
30–40 A standard, up to 60 / 100 A max
Most of the energy goes in here — to ≈ 80 %

ABSORPTION — CV
Hold 14.4 V ± 0.2 (3.6 V/cell)
Current tapers as the cells fill; BMS balances

TERMINATION
Charger switches off at its termination curren
No float needed — or ≤ 13.6 V; BMS stops any over-charge

UNDERWAY
Alternator 14.2–14.6 V, direct or via ACR / DC-
Never switch the battery off while the engine runs

INSTALLER & OEM NOTES

System facts for rigging shops, boat builders and dealers — plus the questions we are asked most.

SYSTEM FACTS

- **Cranking rating** is a 300 ms peak (800 A on the 60Ah, 1,200 A on the rest), not a CCA / MCA test. Compare it with the engine maker's requirement; ask ABYSS for engine-specific test data before quoting compliance with an OEM lithium bulletin.
- **Continuous rating** 150 A (60Ah) / 200 A: size main fuses at or below it and inverters at or below ≈ 2,300 W per battery; parallel two identical batteries for more.
- **Series and parallel** both allowed: up to four identical batteries, same age, each charged to 100 % first. Series banks need a lithium charger rated for the bank voltage; for 24V / 36V trolling motors the ABYSS single-battery lines are simpler.
- **Charging:** 14.4 V ± 0.2, no float needed (≤ 13.6 V if the charger floats), no equalize / desulfate / temperature compensation; 30–40 A standard, 60–100 A max; heater runs from charger power below freezing.
- **Protections:** over-charge, 12 V low-voltage cut-off with Emergency Power Reserve, over-current, short-circuit, high / low temperature, cell balancing. Reset repeated shut-offs only after the cause is found.
- **Standards & shipping:** cells UL 1642 / IEC 62133 / IEC 62619; pack UN 38.3, CE, RoHS, IP67; ABYC E-10 / E-11 / E-13 compliant design. Ships as UN3480 lithium-ion, Class 9.
- **OEM & dealer programs:** trays (AB-G22NF / G24 / GC2 / G31 / G8D), pre-terminated lead sets, CAD models, rigging guides and co-marketing assets — contact the ABYSS team in Largo, Florida.

PRE-DELIVERY CHECKLIST

- ☐ Engine maker's battery requirement checked
- ☐ Cranking rating ≥ requirement (800 / 1,200 A)
- ☐ Start and house banks separate (ACR / DC-DC)
- ☐ Main fuse ≤ BMS rating, ≤ 7 in from terminal
- ☐ Cable gauge per load and run length
- ☐ M8 lugs stacked correctly, torqued, boots fitted
- ☐ Tray strapped, ≤ 1 in movement, above bilge
- ☐ Shore charger set to LITHIUM profile
- ☐ Alternator ≤ 14.6 V confirmed at the battery
- ☐ NMEA 2000 drop connected, data on the MFD
- ☐ App paired; no protection active
- ☐ Warranty registered within 90 days

RELATED ABYSS® PARTS	USE
AB-G22NF · AB-G24 · AB-GC2 · AB-G31 · AB-G8D	Trays for each case size — strap or bracket to ≤ 1 in movement (ABYC E-10)
AB-CRG-12V40A	40 A on-board lithium charger — one battery, 100–240 VAC
AB-CRG-12V-4B · 12V/24V-3B · 12V/36V-3B / -4B	Multi-bank chargers — 10 A isolated 12 V banks (LITHIUM mode) plus the trolling bank
SHARK™ AB-MDX13-60	Bi-directional DC-DC between the 12 V engine battery and a 36V SEAL™ system
ABYSS 24V / 36V trolling batteries	Single-battery 24V / 36V banks instead of series strings — see the trolling motor chart

FREQUENTLY ASKED

Will it start my outboard?	Compare the engine maker's requirement with the cranking rating — 1,200 A, or 800 A for the 60Ah — and check the maker's lithium position on page 5. Lithium cranks as hard at the end of the day as at the start.
Can one battery start the engine and run the house?	Yes. Lithium cells deliver starting current and can be deeply discharged thousands of times; the BMS reserve protects the restart. Separate start and house banks are still best practice for boats with heavy loads.
What is the Emergency Power Reserve?	At 12 V the BMS switches the output off and keeps the remaining energy. Press the button on the battery to release it and start the engine.
Can I charge from the engine alternator?	Yes, directly, without a converter. Check that the regulator holds ≤ 14.6 V and that the alternator can run at full output for long periods; never switch the battery off while the engine runs.
Can I mix with my lead-acid batteries?	Not in the same bank. Lithium and lead-acid can share a boat as separate banks with their own charge profiles — join them with a DC-DC charger, not a BOTH switch.
Which charger do I need?	A 12 V lithium charger: AB-CRG-12V40A, or the 12 V banks of an ABYSS multi-bank charger set to LITHIUM. Lead-acid, AGM or gel profiles under-charge or over-charge the cells.
Two 12V batteries in series for a 24V trolling motor?	Allowed with identical batteries and a 24 V lithium charger — but the ABYSS 24V and 36V single-battery lines give one battery, one input and one charger.
Does cold weather matter?	Charging below freezing is handled by the built-in heater, powered by the charger or alternator. Starting and discharge are rated to −20 °C (−4 °F).
What does NMEA 2000 add?	The 206Ah and 460Ah report state of charge, voltage and current to the helm display as well as to the phone — one drop cable to the backbone.

WARRANTY

10-year limited warranty on ABYSS 12V dual-purpose batteries when registered within 90 days of purchase (online or in the app, with proof of purchase and serial number); **5 years** unregistered with the original receipt. Transferable to a new owner at no charge when the transfer is registered within 30 days. Not covered: improper installation or charging (including non-lithium chargers), loose or corroded terminals, submersion, unauthorized opening, and labor or shipping except for confirmed defects. Full terms at abyssbattery.com/pages/warranty-policy.

Battery specifications are ABYSS BATTERY® published values as of October 2026 and may change without notice; the data sheet and manual supplied with each product take precedence. Engine battery requirements, alternator ratings and lithium policies are the engine manufacturers' published values and statements as of October 2026 and are shown for planning only — always confirm against the owner's manual for the exact model year. Yamaha®, Mercury®, Verado®, Suzuki®, Honda®, Tohatsu®, Minn Kota®, MotorGuide®, Garmin®, Simrad®, Lowrance®, Raymarine®, Power-Pole®, Seakeeper®, Victron® and NMEA 2000® are trademarks of their respective owners, which are not affiliated with and do not endorse ABYSS BATTERY®. ABYSS BATTERY®, SEAL™, SHARK™, CRYSTAL®, MANTA™ and INFINITE™ are trademarks of ABYSS BATTERY®, Inc.

NOT SURE WHICH BATTERY FITS?
Run the Boat Wizard at abyssbattery.com for a system matched to your engines, electronics and dock — or send your rigging questions to the ABYSS team.

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