ARCTIUM ENERGY CORP.

VRLA BATTERIES

VRLA Battery Catalog

Capacity range: 1.2 Ah – 3,000 Ah · Product Catalog & Selection Guide

arctiumenergycompany.com · info@arctiumenergycompany.com

ABOUT THIS CATALOG

Arctium Energy Corp. is dedicated to developing innovative, sustainable energy solutions — established in 2023 as a research company at UBC. Our goal is to eliminate reliance on diesel generators by providing cost-effective, zero-emission alternatives for businesses, households and communities.

1055 Dunsmuir Street, Suite 3000
Vancouver, BC V7X 1K8, Canada

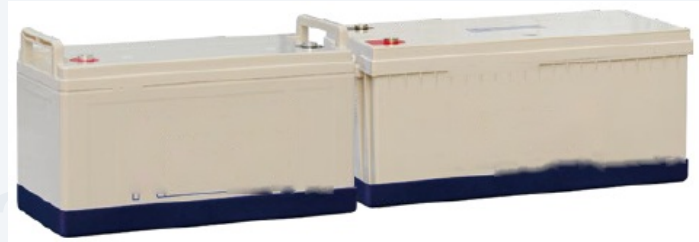
VRLA Battery Catalog

Arctium supplies valve-regulated lead-acid batteries to UPS manufacturers, system assemblers, integrators and end users across Canada. Nine sealed series cover everything from a 1.2 Ah monobloc in an emergency light to a 3,000 Ah 2 V cell in a central plant string, with matching racks, cabinets and monitoring. Cells are manufactured on a single vertically integrated line — plate production, assembly, formation and packaging — under one point of accountability.

VRLA BATTERIES · 1.2 Ah – 3,000 Ah

Monobloc 12 V and 6 V, 2 V cells, high-rate data-centre series, gel, deep-cycle solar, and lithium iron phosphate packs.

- Monobloc 6 V and 12 V — four series from 1.2 Ah to 250 Ah
- High rate — 250 to 780 W per cell, rated the way UPS sizing tables are written
- 2 V cells — 200 to 3,000 Ah, twenty-year float design life



9	3,000 Ah	20 yr	UL 1989
SEALED SERIES	LARGEST CELL	FLOAT DESIGN LIFE	SAFETY STANDARD

Series at a Glance

Nine sealed lead-acid series

Capacity ranges overlap deliberately. The series is chosen by duty and design life first, then the model by the capacity that duty needs.

1.2 Ah – 28 Ah

FM Small Sealed

Small-capacity UPS, emergency lighting, security alarm

33 Ah – 250 Ah

FM Standby Sealed

UPS, communication, power

65 Ah – 200 Ah

FML Long Life Middle

UPS, communication, power

50 Ah – 200 Ah

FMH Rack-Mounted

UPS, communication, power

250 W – 780 W per cell

GFMHR High Rate

Data centre, UPS

200 Ah – 3000 Ah

GFM Sealed 2 V Cell

Communication, power

300 Ah – 1000 Ah

GFML Long Life 2 V Cell

UPS, communication, power

38 Ah – 3000 Ah

Solar Deep Cycle

Solar energy storage equipment

38 Ah – 3000 Ah

AGEL Sealed Gel

UPS, communication, energy storage

Choosing the right series

Selection guide

Four questions settle almost every selection: how long the discharge is, how many years of float life the site needs, whether the load is a UPS or a cycling application, and whether the installation is a monobloc rack or a cell string.

01 DISCHARGE LENGTH

Short and hard, or long and steady

Use for: Discharges under 30 minutes at high current — the classic UPS profile.

How it works: Use **GFMHR**. It is rated in watts per cell rather than amp-hours, which is how UPS runtime tables are written, and it holds 250–780 W per cell for 15 minutes. For discharges of an hour or more, use **FM Standby** or a 2 V **GFM** cell.

02 DESIGN LIFE

Five years, twelve, or twenty

Use for: How long the battery must sit on float before it is replaced.

How it works: FM Small is a five-year float design for light standby duty. **FM Standby**, **FML**, **FMH** and **GFMHR** are twelve-year designs. The 2 V **GFM** and **GFML** cells are twenty-year designs — the right answer where a replacement outage is expensive.

03 DUTY

Standby float, or repeated cycling

Use for: A standby battery sits charged; a cycling battery is discharged and recharged daily.

How it works: Standby duty takes the **FM** and **GFM** families. Daily cycling takes the **Solar Deep Cycle** series, built for that duty. **AGEL** gel suits high ambient temperatures and installations where acid stratification is a concern.

04 INSTALLATION

Monobloc rack, cell string, or 19-inch

Use for: The physical form drives the rack, the terminal type and the cabling.

How it works: 12 V monoblocs go on **BR** racks or in **A-series** cabinets. 2 V cells go on **SR** racks. **FMH** is the rack-mounted front-terminal form for 19-inch installations. Terminal types are listed on every series page.

What comes with the cell

Manufacturing and handling

Fully self-produced

Plate production, assembly, charging and packaging, PCBA, rack and enclosure — one manufacturing chain, one point of accountability.

Anti-slip, anti-acid tray

Supplied as standard on the 33 Ah and larger monoblocs and on every 2 V cell. Contains electrolyte leakage, resists impact in transit, and sets the installation spacing.

Long life

Cycle life over 800 cycles; float design life up to 20 years on the 2 V cell series.

Wide operating window

−20 °C to +50 °C, including desert and high-altitude environments.

The tray is not an accessory. The anti-slip, anti-acid tray is supplied as standard on the 33 Ah and larger monoblocs and on every 2 V cell. It contains electrolyte leakage — the most common ignition path in a battery room — resists impact damage in transit and handling, and fixes the installation spacing between units.

MONOBLOC SERIES

Sealed 6 V and 12 V Monoblocs

Four series from 1.2 Ah to 250 Ah, for UPS, communications and general standby power.

FM Small Sealed Series

1.2 Ah – 28 Ah

Standard series, designed float charging life up to 5 years · Small-capacity UPS, emergency lighting, security alarm

MODEL	V	20 HR (1.75 V/C)	5 HR (1.75 V/C)	1 HR (1.60 V/C)	DIMENSIONS L/W/H/TOTAL (MM)	KG	TERMINAL
3-FM-1.2	6	1.2	1	0.72	97.5 / 24 / 52 / 58	0.31	F1
3-FM-3	6	3	2.55	1.8	135 / 35 / 60 / 66	0.71	F1
3-FM-4	6	4	3.4	2.4	70 / 47 / 100 / 106	0.81	F1
3-FM-7	6	7	5.6	4.2	151 / 34 / 95 / 101	1.15	F1/F2
6-FM-1.9	12	1.9	1.6	1.14	178.5 / 35 / 60.5 / 66.5	0.9	F1
6-FM-3	12	3	2.55	1.8	135 / 67.5 / 61 / 67	1.28	F1
6-FM-4	12	4	3.4	2.4	90 / 70 / 100 / 107	1.45	F1/F2
6-FM-4.5	12	4.5	3.6	2.7	90 / 70 / 100 / 107	1.5	F1/F2
6-FM-5	12	5	4	3	90 / 70 / 100 / 107	1.61	F1/F2
6-FM-6	12	6	4.8	3.6	151 / 65 / 94 / 100	1.8	F1/F2
6-FM-6.5	12	6.5	5.2	3.9	151 / 65 / 94 / 100	2	F1/F2
6-FM-7	12	7	5.6	4.2	151 / 65 / 94 / 100	2.05	F1/F2
6-FM-7.2	12	7.2	5.7	4.3	139.5 / 48 / 118 / 118	2.2	F1/F2
6-FM-7.5	12	7.5	6	4.5	151 / 65 / 94 / 100	2.2	F1/F2

FM Small Sealed Series, continued

1.2 Ah – 28 Ah

MODEL	V	20 HR (1.75 V/C)	5 HR (1.75 V/C)	1 HR (1.60 V/C)	DIMENSIONS L/W/H/TOTAL (MM)	KG	TERMINAL
6-FM-8	12	8	6.4	4.8	151 / 65 / 94 / 100	2.35	F1/F2
6-FM-8.5	12	8.5	6.8	5.1	151 / 65 / 94 / 100	2.5	F1/F2
6-FM-9	12	9	7.5	5.9	151 / 65 / 94 / 100	2.52	F1/F2
6-FM-12	12	12	9.6	7.2	151 / 98 / 94 / 100	3.8	F2
6-FM-14	12	14	11.2	8.4	151 / 98 / 94 / 100	4	F2
6-FM-15	12	15	12	9	181 / 77 / 167 / 167	4.9	B1/T4
6-FM-17	12	17	13.6	10.2	181 / 77 / 167 / 167	5.1	B1/T4
6-FM-18	12	18	14.4	10.8	181 / 77 / 167 / 167	5.2	B1/T4
6-FM-20	12	20	16	12	181.5 / 77 / 167 / 167	6	T4
6-FM-22	12	22	17.6	13.2	181.5 / 77 / 167 / 167	6.4	T4
6-FM-24	12	24	19.2	14.4	166 / 126 / 174 / 174	8	T1
6-FM-26	12	26	20.8	15.6	177 / 167 / 126 / 126	8.2	B1/T4
6-FM-28	12	28	22.4	16.8	166 / 126 / 174 / 174	9.1	T1

FM Standby Sealed Series

33 Ah – 250 Ah

Standard series, designed float charging life up to 12 years · UPS, communication, power

MODEL	V	10 HR (1.8 V/C)	8 HR (1.8 V/C)	5 HR (1.8 V/C)	1 HR (1.75 V/C)	DIMENSIONS L/W/H/TOTAL (MM)	KG	TERMINAL
3-FM-180	6	180	165	139	108	323 / 178 / 226 / 231	27.7	T5
3-FM-200	6	200	174	160	120	323 / 178 / 226 / 231	28.8	T5
6-FM-33	12	33	30.4	25.4	19.8	196 / 131 / 155 / 169	10.1	T1
6-FM-38	12	38	33.6	30.4	22.8	198 / 166 / 170 / 170	12	T1
6-FM-45	12	45	40.3	36	27	198 / 166 / 170 / 170	13.7	T1
6-FM-50	12	50	44.8	40	30	229 / 138 / 211 / 216	16	T1
6-FM-55	12	55	49.3	44	33	229 / 138 / 211 / 216	18.5	T1
6-FM-65	12	65	56.5	52	39	350 / 167 / 174 / 174	19.7	T2
6-FM-70	12	70	62.7	56	42	260 / 169 / 211 / 216	21.4	T1

FM Standby Sealed Series, continued

33 Ah – 250 Ah

MODEL	V	10 HR (1.8 V/C)	8 HR (1.8 V/C)	5 HR (1.8 V/C)	1 HR (1.75 V/C)	DIMENSIONS L/W/H/TOTAL (MM)	KG	TERMINAL
6-FM-75	12	75	67.2	60	45	260 / 169 / 211 / 216	22.3	T1
6-FM-80	12	80	71.7	64	48	260 / 169 / 211 / 216	23.6	T1
6-FM-90	12	90	80	72	54	307 / 169 / 211 / 216	26.8	T2
6-FM-100	12	100	90	80	60	407 / 174 / 208 / 236	33	T3
6-FM-120	12	120	107	96	72	407 / 174 / 208 / 236	34.5	T3
6-FM-150	12	150	134	120	90	532 / 207 / 214 / 219	47.5	T3
6-FM-160	12	160	144	128	96	341 / 173 / 281 / 288	43.8	T5
6-FM-200	12	200	180	160	120	523 / 240 / 225 / 230	58.5	T3
6-FM-250	12	250	225	200	150	520 / 269 / 223 / 228	69.2	T5

FML Long Life Middle Series

65 Ah – 200 Ah

Designed float charging life up to 12 years · UPS, communication, power

MODEL	V	20 HR	10 HR	8 HR	5 HR	1 HR (1.75 V/C)	DIMENSIONS L/W/H/TOTAL (MM)	KG	TERMINAL
6-FML-65	12	65	60	54.7	48	34.6	350 / 167 / 174 / 174	20.7	T2
6-FML-100	12	100	80	71.7	64	46	407 / 174 / 208 / 236	29.4	T3
6-FML-120	12	120	100	89.6	80	59.8	407 / 174 / 208 / 236	33.5	T3
6-FML-150	12	150	140	117	108	78	532 / 207 / 214 / 219	48.5	T3
6-FML-200	12	200	180	150	144	104	523 / 240 / 225 / 230	59.5	T3

FMH Rack-Mounted Series

50 Ah – 200 Ah

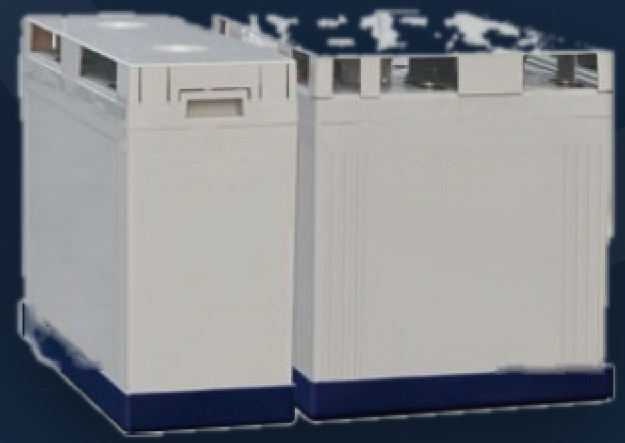
Rack-mounted series, designed float charging life up to 12 years · UPS, communication, power

MODEL	V	10 HR	8 HR	5 HR	1 HR (1.75 V/C)	DIMENSIONS L/W/H/TOTAL (MM)	KG	TERMINAL
6-FMH-50	12	50	44.8	40	30	277 / 106 / 222 / 222	16	T1
6-FMH-100	12	100	89.6	80	60	395 / 110 / 286 / 286	31.7	T5
6-FMH-150	12	150	134	120	90	551 / 110 / 288 / 288	44.8	T5
6-FMH-200	12	200	174	160	120	560 / 125 / 320 / 320	59.5	T5

HIGH RATE & 2 V CELLS

Data-Centre High Rate and 2 V Cell Strings

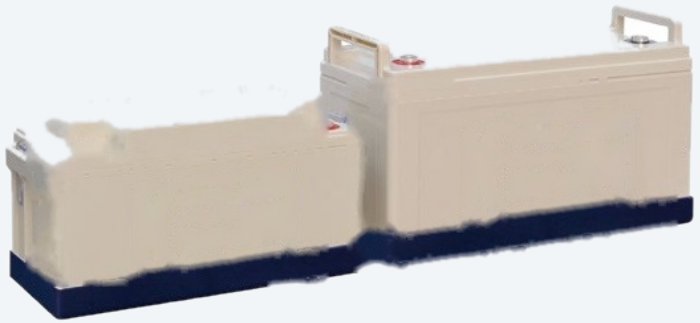
The two series a UPS builder or a central-plant designer reaches for first.



GFMHR High Rate Series

6-GFMHR-250 to 6-GFMHR-780 · 12 V monobloc

250–780 W



The data-centre and UPS series. Rated in watts per cell over a 15-minute discharge — the way UPS runtime tables are written — rather than in amp-hours, so it drops straight into a UPS sizing calculation. Twelve-year float design life and a wide ambient window.

Rated output	250 W to 780 W per cell at 15 min, 1.67 V/C
Nominal voltage	12 V
Float design life	12 years
Operating range	−20 °C to +60 °C
Construction	Gas composite technology, maintenance-free
Safety valve	Automatic, self-resealing
Tray	Anti-slip, anti-acid tray supplied as standard
Terminals	T1 and T3
Application	Data centre, UPS

Certifications: UL 1989 (Standby Batteries)

WHY WATTS PER CELL

UPS runtime tables are written in watts, not amp-hours. A UPS sizing chart asks how many watts each cell must hold for the required autonomy, so a battery rated the same way drops straight into the calculation. The amp-hour columns are given as well for strings specified the other way.

RECOMMENDED USE CASES

Sold as a component

Supplied to UPS manufacturers and assemblers as a component for their own listed assemblies, and to end users as a replacement string.

Eight ratings

250, 350, 400, 510, 550, 630, 750 and 780 W per cell.

GFMHR High Rate — model table

250 W – 780 W per cell

The 15-minute column is in watts per cell; the remaining columns are amp-hours at the stated end voltage.

MODEL	V	15 MIN (1.67 V/C)	10 HR (1.80 V/C)	5 HR (1.80 V/C)	1 HR (1.75 V/C)	DIMENSIONS L/W/H/TOTAL (MM)	KG	TERMINAL
6-GFMHR-250	12	250	65	61	40.6	260 / 169 / 211 / 216	22.3	T1
6-GFMHR-350	12	350	100	85	57	407 / 174 / 208 / 236	32	T3
6-GFMHR-400	12	400	110	94	65	407 / 174 / 208 / 236	34	T3
6-GFMHR-510	12	510	150	120	90	483 / 170 / 241 / 243	44	T3
6-GFMHR-550	12	550	150	128.5	85.4	480 / 177 / 225 / 230	44	T3
6-GFMHR-630	12	630	180	154	97.6	523 / 240 / 225 / 230	54	T3
6-GFMHR-750	12	750	200	178	118	523 / 240 / 225 / 230	60	T3
6-GFMHR-780	12	780	200	182	121	523 / 240 / 225 / 230	62	T3

GFM Sealed 2 V Cell Series

200 Ah – 3000 Ah

High-capacity cell series, designed float charging life up to 20 years · Communication, power

MODEL	V	10 HR (1.8 V/C)	8 HR (1.8 V/C)	5 HR (1.8 V/C)	1 HR (1.75 V/C)	DIMENSIONS L/W/H/TOTAL (MM)	KG	TERMINAL
GFM200	2	200	185	170	110	172 / 111 / 329 / 365	13	T3
GFM300	2	300	277	255	165	171 / 151 / 330 / 366	18	T3
GFM400	2	400	370	340	220	210 / 171 / 329 / 363	24.5	T3
GFM500	2	500	463	425	275	241 / 172 / 331 / 366	28	T3
GFM600	2	600	555	510	330	301 / 175 / 331 / 366	35	T3
GFM800	2	800	740	680	440	410 / 175 / 330 / 365	49.5	T3
GFM1000	2	1000	925	850	550	475 / 175 / 328 / 365	57	T3
GFM1200	2	1200	1110	1020	660	401 / 351 / 344 / 382	80	T3
GFM1500	2	1500	1388	1275	825	401 / 351 / 344 / 382	90.5	T3
GFM2000	2	2000	1850	1700	1100	491 / 351 / 343 / 383	120	T3
GFM2500	2	2500	2313	2125	1375	712 / 353 / 341 / 382	157	T3
GFM3000	2	3000	2775	2550	1650	712 / 353 / 341 / 382	174	T3

GFML Long Life 2 V Cell Series

300 Ah – 1000 Ah

High-capacity cell series, designed float charging life up to 20 years · UPS, communication, power

MODEL	V	20 HR	10 HR	8 HR	5 HR	1 HR (1.75 V/C)	DIMENSIONS L/W/H/TOTAL (MM)	KG	TERMINAL
GFML-300	2	300	270	249	229	149	171 / 151 / 330 / 366	19	T3
GFML-400	2	400	360	332	306	195	210 / 171 / 329 / 363	24.5	T3
GFML-500	2	500	450	415	382	248	241 / 172 / 331 / 366	30.6	T3
GFML-600	2	600	540	498	459	297	301 / 175 / 331 / 366	36.7	T3
GFML-800	2	800	720	664	612	396	410 / 175 / 330 / 365	51	T3
GFML-1000	2	1000	900	830	765	495	475 / 175 / 328 / 365	61.3	T3

SPECIALIST SERIES

Deep Cycle, Gel and Lithium

Series for daily cycling, high ambient temperatures, and lithium iron phosphate packs.

Solar Deep Cycle Series

38 Ah – 3000 Ah

12 V series float life up to 12 years; 2 V series up to 20 years · Solar energy storage equipment

MODEL	V	10 HR (1.8 V/C)	8 HR (1.8 V/C)	5 HR (1.8 V/C)	1 HR (1.75 V/C)	DIMENSIONS L/W/H/TOTAL (MM)	KG	TERMINAL
6-FM-38T	12	38	33.6	30.4	22.8	198 / 166 / 170 / 170	12	T1
6-FM-65T	12	65	56.5	52	39	350 / 167 / 174 / 174	20	T2
6-FM-100T	12	100	90	80	60	407 / 174 / 208 / 236	33	T3
6-FM-120T	12	120	107.2	96	72	407 / 174 / 208 / 236	34.5	T3
6-FM-150T	12	150	134	120	90	532 / 207 / 214 / 219	47.8	T3
6-FM-200T	12	200	180	160	120	523 / 240 / 225 / 230	58.5	T3
GFM-200T	2	200	185	170	110	172 / 111 / 329 / 365	13.1	T3
GFM-500T	2	500	463	425	275	241 / 172 / 331 / 366	29	T3
GFM-1000T	2	1000	925	850	550	475 / 175 / 328 / 365	58	T3
GFM-1500T	2	1500	1388	1275	825	401 / 351 / 344 / 382	92.6	T3
GFM-2000T	2	2000	1850	1700	1100	491 / 351 / 343 / 383	122.5	T3
GFM-3000T	2	3000	2775	2550	1650	712 / 353 / 341 / 382	174	T3

AGEL Sealed Gel Series

38 Ah – 3000 Ah

Gel series; 12 V float life up to 12 years, 2 V up to 20 years · UPS, communication, energy storage

MODEL	V	10 HR (1.8 V/C)	8 HR (1.8 V/C)	5 HR (1.8 V/C)	1 HR (1.75 V/C)	DIMENSIONS L/W/H/TOTAL (MM)	KG	TERMINAL
6-FM-38J	12	38	33.6	30.4	22.8	198 / 166 / 170 / 170	12.2	T1
6-FM-65J	12	65	56.5	52	39	350 / 167 / 174 / 174	20.3	T2
6-FM-100J	12	100	90	80	60	407 / 174 / 208 / 236	33	T3
6-FM-150J	12	150	134	120	90	532 / 207 / 214 / 219	48.6	T3
6-FM-200J	12	200	180	160	120	523 / 240 / 225 / 230	58.5	T3
GFM200J	2	200	185	170	110	172 / 111 / 329 / 365	13.3	T3
GFM500J	2	500	463	425	275	241 / 172 / 331 / 366	29.5	T3
GFM1000J	2	1000	925	850	550	475 / 175 / 328 / 365	59	T3
GFM2000J	2	2000	1850	1700	1100	491 / 351 / 343 / 383	124.5	T3
GFM3000J	2	3000	2775	2550	1650	712 / 353 / 341 / 382	177	T3

Racks, Cabinets and Terminals

Installation hardware

Racks and cabinets are supplied with the batteries so the string arrives as one orderable item rather than as parts from three suppliers.

ITEM	MODELS	DETAIL
Standard rack, 12 V batteries	BR-8 to BR-48 (A / B / C widths)	2 or 4 layers; 900–2600 mm long, 450–650 mm wide, 750 or 1528.4 mm high; 28–162 kg
Standard rack, 2 V cells	SR-8 to SR-24 (A / B / C widths)	2 or 3 layers; 900–1300 mm long, 450–650 mm wide, 1041.9 or 1625.7 mm high; 30–67 kg
Battery cabinet	A1 to A32	Holds 1, 2, 4, 6, 8, 12, 16, 20, 32 or 40 batteries; 5.3–60 kg; light grey

Terminal types. F1 4.8 mm blade · **F2** 6.45 mm blade · **T** Threaded insert · **B1** 14 mm bolt plate · **B2** 26 mm bolt plate · **T1** Ø14 mm, M6 · **T2** Ø16 mm, M6 · **T3** Ø20 mm, M8 · **T4** Ø12 mm, M4 · **T5** Ø18 mm, M8 · **T6** Ø18 mm, M6

Standards and what a buyer receives

For manufacturers and assemblers

UL 1989

The North American safety standard for valve-regulated and vented standby batteries. This is the standard UPS assemblers specify.

Component supply

Batteries certified to UL 1989 are normally UL Recognized Components, which is what lets an assembler use them inside their own listed UPS without re-testing the battery.

Non-spillable transport

VRLA supplied for North America is classified non-spillable, which governs how it ships and what paperwork travels with it.

Per-order documentation

Certificate references, the model list they cover, and transport classification are issued with each order and confirmed before shipment.

For UPS assemblers. Arctium supplies cells, trays, racks, cabinets and the monitoring system as one order, matched to the string voltage and runtime your product needs. Where you hold your own UL 1778 listing, we supply the component documentation your certification body requires. Ask for the certificate reference and covered model list with your first quotation.

Battery Monitoring and Management

Optional system

What it watches

Cell voltage, current, temperature and internal resistance, continuously and remotely.

Why resistance

Internal resistance correlates with capacity to about 95%, so a failing cell is found without discharging the string.

No discharge test

The measurement does not interrupt normal operation, so the UPS stays protected while the battery is assessed.

What it prevents

Sulfation, water loss, plate corrosion and thermal runaway are the four failure modes; all four announce themselves in the monitored parameters before they cause an outage.

Batteries are the most common source of fault in a UPS installation, and a failed cell in a series string takes the whole string with it. Monitoring turns a battery from a scheduled-replacement item into a condition-based one.

Let's specify the right string.

Capacities shown are per-unit nameplate figures at the stated discharge rate and end voltage. Every string is specified against the load, the required autonomy, the charger characteristic and the ambient temperature of the room it sits in — and, where the battery goes inside your own listed product, against your certification body's component requirements. Contact Arctium to specify your string.

VRLA BATTERIES

ARCTIUM ENERGY CORP.
arctiumenergycompany.com
info@arctiumenergycompany.com
1055 Dunsmuir Street, Suite 3000, Vancouver, BC V7X 1K8, Canada