## LITHIUM-84165 84V 165AH

Rechargable Lithium Battery – LIFEP04 LEGACY LITHIUM – 84V Bluetooth® Enabled Series

### **BATTERY FEATURES**

- Super safe lithium iron phosphate (LiFePO4) chemistry reducing the risk of explosion or combustion due to high impact, over-charging, or short circuit situation
- Bluetooth<sup>®</sup> communication capability for battery status
- Battery Management System (BMS) controls the parameters of the battery to provide optimum safety by protecting against over-charging and over-discharging
- BMS enhanced design balances the battery cells, optimizing battery performance
- Delivers twice the power of lead-acid batteries, even at high discharge rates, while maintaining high energy capacity
- Faster charging and lower self-discharge
- Up to 10 times more cycles than lead-acid batteries
- Compact and only 40% of the weight of comparable lead acid batteries
- Rugged impact resistant Stainless Box

### **APPROVALS**

- UL 1642 cell certificate
- UN 38.3 Certified
- MSDS

## LEGACY LITHIUM 84V LIFEPO4 BATTERY SERIES

MSDS

Legacy lithium 84v LIFEPO4 Battery series, adopt the high discharge rate cell, including 10kw discharge BMS system solution, with an intelligent battery management system that monitors current and voltages during charge and discharge. This protects the battery from over-charge and over-discharge.

The BMS embeds smart balancing algorithms that control all cell voltages in the battery, making sure they are constantly at the same voltage level, optimizing battery capacity.

BLUETOOTH® ENABLED Monitor the State of Charge (SoC), State of Health (SoH), current, capacity, temperature, number of cycles, and voltage levels of the battery and individual cells from Andriod / IOS App

### **APPLICATIONS**

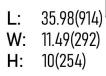
- SolarUGV
- Mobility Transport
- Golf Carts UTV'S

#### **DIMENSIONS: inch (mm)**



152mm

914mm



#### PERFORMANCE SPECIFICATIONS Nominal Voltage 89.6 V **Rated Capacity** 165AH at a Constant Current of 0.5C to 40V Stored Energy (Wh) 14784 Wh Cycle Life (at 100% DOD) 3000 Cycles Approximate Weight 229.3 lbs (104 kg) Internal Resistance ≤20.0 m0 Max Charge Current 100 A Max Continuous/Discharge Current 200A / 600A (5S) Charge Cut-off Voltage 102.2 V **Recommended Discharge Cut-Off** 70 V Voltage Up to 4 batteries can be connected in parallel Series & Parallel Connection **Operating Temperature Range** Charge 32°F (0°C) to 140°F (60°C) Discharge 14°F (-10°C) to 140°F (60°C) Recommended 59°F (15°C) to 95°F (35°C) Self-Discharge Rate $\leq 3\%$ /month Long Term Storage Charge every 6 months or as soon as Long Term Storage OCV is 12.8V (approximately 20% SOC) Power Sonic Chargers Contact us for information on a suitable charger Life Expectancy (years) 5 years at one cycle per day Short Circuit Protection Automatically recover after removal of short **Dimensional Tolerances** max torque 15 ft/lbs Terminal Type M8 Natural air cooling **Cooling Way** Heat Function Cell Heater Technology Waterproofing Standard IP66



# LITHIUM-84165

Rechargable Lithium Battery - LIFEP04 LEGACY LITHIUM - 84V Bluetooth® Enabled Series



Details		Min	Тур	Max	Error	Unit	
Battery Gas		3.20V lithium bat	tery				
Battery Link		28S1P					
Loop capabil	ity	No					
Input Chargi	ng Voltage		102.2		±1%	۷	
Input Chargi	ng Current		< 50			A	1
Output Disch	arging Voltage		89.6			٧	
Continuous						٨	
Discharging			≤200			A	
Ambient Condition	Operating Temperature	-20/-4	25	60/140		°C/°F	
	Humidity (No Water-Drop) Temperature	0% -20/-4		90% 85/185		RH ℃/°F	
Storage Condition	Humidity (No Water-Drop)			90%		RH	1
Protection	n Parameters (fo		l Cell)				
Over-Charge		3.65		±25mV	v		
Voltage Prot					v		B
Over-flashin		1000		±300	mS		
Over-Charge Protection R	Voltage elease (OVPR)	3.6		±50mV	V		1
Over-Discha Voltage Prot		2.4		±80mV	۷		N
Over-lapping	]	20		±6	mS		5
Over-Discha Protection R	rge Voltage elease (UVPR)	2.50-2.60			V		€
Over-Curren Protection (C		800		±10	A		0
Over-Curren Delay Time (I		30		±5	mS		
Over-Discha Protection R		Recovering after	cutting off the	load			0
Over-Curren Protection R		Recovering after	cutting off the l	load			0
Short circuit protection		Enable					0
Short circuit protection de		200	600	±100	uS		
Short circuit Release	protection	Recovering a	fter cutting	off the load			0
Discharging	Temperature	75/167	External	±5	°C/°F		0
Protection R		70/158		±10	°C/°F		B
Discharge pr temperature	otection recovery method	Automatic reco	overy				R
charging Ter	nperature						S
charging Ter Protection R	nperature elease						F
Cell balance							R
Bleed StartP	oint	71/159.8		±10mA	°C/°F		t,
Bleed Currer	ıt						<b>F</b>
Balance Mod	e	Charging Auto Ac	ctive Balance				P   <b>F</b>
Idle mode		≤5uA			uA		d
Main loop el	ectrify resistance	MAX: 7mΩ	2.14		mΩ		d
PCBA Size		220 (±0.5) ×3	0 K 0 K 0	a	mm		
Data Storage	9	Cycle quantity da	ata storage reco	rd by Bluetooth			

### **BENEFITS OF LITHIUM**

Lithium offers several performance advantages over Lithium Sealed Lead Acid (SLA) equivalents. This series of lithium iron phosphate batteries adopts a high rate prismatic cell solution, the capacity is independent of the discharge rate and provides ultra-high constant power throughout the discharge process. The degradation of this lithium battery at high temperature is significantly reduced compared to SLA.

At room temperature, the cycle life of lithium is ten times longer than that of SLA.

Finally, lithium battery charging follows a similar charging curve as SLA, constant current and constant voltage (CC/CV). However, lithium can be charged faster without maintenance floating charges. It is recommended to use a professional LIFEP04 charger, which is more conducive to maximize the cycle life of lifep04 battery.

#### BMS TECHNICAL SPECIFICATIONS

Cell model	LFP/MT165A
Cell type	Prismatic cell
Nominal Capacity (0.5C)	165A
Standard C/Discharge Current	0.5C/1C 80A/165A
Max Cntinuous Discharge Current	2C / 300A
Over-charge	
Over-charge protection voltage for each cell	3.65V
Over-charge release voltage for each cell	3.6 V
Over-charge release method	Protection releases when all cell voltages drop below the over-charge release voltage
Over-discharge	
Over-discharge protection voltage for each cell	2.4v
Over-discharge release voltage for each cell	2.8v
Over-discharge release method	Protection releases upon charging
Over current	
Discharge over current protection	600-800 A
Over-current delay time	50-200 mS
Over current release condition	Protection releases upon removing load and charging
Battery temperature	
Over-temperature protection	65±5℃
Release temperature	50±5°C
Short circuit protection	
Function condition	External short circuit
Short circuit delay time	200 ms
Release condition	Protection releases upon removing short circuit and charging

### FURTHER INFORMATION

Please refer to our website http://Legacylithium.com or email us at http://Legacylithium.comor a complete range of useful downloads, such as product catalogs, material safety data sheets (MSDS), ISO certification, etc.



### LITHIUM-72165 72V 165AH

Rechargable Lithium Battery – LIFEP04 LEGACY LITHIUM – 72V Bluetooth® Enabled Series

### **BATTERY FEATURES**

- Super safe lithium iron phosphate (LiFePO4) chemistry reducing the risk of explosion or combustion due to high impact, over-charging, or short circuit situation
- Bluetooth<sup>®</sup> communication capability for battery status
- Battery Management System (BMS) controls the parameters of the battery to provide optimum safety by protecting against over-charging and over-discharging
- BMS enhanced design balances the battery cells, optimizing battery performance
- Delivers twice the power of lead-acid batteries, even at high discharge rates, while maintaining high energy capacity
- Faster charging and lower self-discharge
- Up to 10 times more cycles than lead-acid batteries
- Compact and only 40% of the weight of comparable lead acid batteries
- Rugged impact resistant Stainless Box

### **APPROVALS**

- UL 1642 cell certificate
- UN 38.3 Certified
- MSDS

### Certified UN EXAMPLES UN38.3 DECEMPTOR SELECTION MSDS

### LEGACY LITHIUM 48V LIFEPO4 BATTERY SERIES

Legacy lithium 72v LIFEP04 Battery series, adopt the high discharge rate cell, including 10kw discharge BMS system solution, with an intelligent battery management system that monitors current and voltages during charge and discharge. This protects the battery from over-charge and over-discharge.

The BMS embeds smart balancing algorithms that control all cell voltages in the battery, making sure they are constantly at the same voltage level, optimizing battery capacity.

BLUETOOTH® ENABLED Monitor the State of Charge (SoC), State of Health (SoH), current, capacity, temperature, number of cycles, and voltage levels of the battery and individual cells from Andriod / IOS App

### **APPLICATIONS**

- SolarUGV
- Mobility Transport
- Golf Carts UTV'S

### DIMENSIONS: inch (mm)



914mm

L: 35.98(914) W: 11.49(292) H: 10(254)

PERFORMANCE SPECIFICATIONS	
Nominal Voltage	76.8 V
Rated Capacity	165AH at a Constant Current of 0.5C to 60V
Stored Energy (Wh)	12672 Wh
Cycle Life (at 100% DOD)	3000 Cycles
Approximate Weight	200.6 lbs (91 kg)
Internal Resistance	≤20.0 mΩ
Max Charge Current	100 A
Max Continuous/Discharge Current	200A / 600A (5S)
Charge Cut-off Voltage	87.6 V
Recommended Discharge Cut-Off Voltage	60 V
Series & Parallel Connection	Up to 4 batteries can be connected in parallel
<b>Operating Temperature Range</b> Charge Discharge Recommended	32°F (0°C) to 140°F (60°C) 14°F (-10°C) to 140°F (60°C) 59°F (15°C) to 95°F (35°C)
Self-Discharge Rate	≤3%/month
Long Term Storage	Long Term Storage Charge every 6 months or as soon as OCV is 12.8V (approximately 20% SOC)
Power Sonic Chargers	Contact us for information on a suitable charger
Life Expectancy (years)	5 years at one cycle per day
Short Circuit Protection	Automatically recover after removal of short
Dimensional Tolerances	max torque 15 ft/lbs
Terminal Type	M8
Cooling Way	Natural air cooling
Heat Function	Cell Heater Technology
Waterproofing Standard	IP66



## LITHIUM-72165 <sup>72V</sup> 654H

Rechargable Lithium Battery - LIFEP04 LEGACY LITHIUM - 72V Bluetooth® Enabled Series



Details		Min	Тур	Мах	Error	Unit
Battery Gas		3.20V lithium batt				
Battery Link		24S1P				
Loop capabil	lity	No				
Input Chargi	ng Voltage		87.6		±1%	V
Input Chargi	ng Current		< 50			A
Output Disch	arging Voltage		76.8v			٧
Continuous			≤200			A
Discharging	Operating Temperature	-20/-4	25	60/140		°C/°F
Ambient Condition	Humidity (No Water-Drop)	-20/-4	ZJ	90%		
Storage	Temperature	-20/-4		85/185		°C/°F
Condition	Humidity (No Water-Drop)	0%		90%		RH
Protection	n Parameters (fo	r Individual	Cell)			
Over-Charge		3.65		±25mV	v	
Voltage Prot						
Over-flashin		1000		±300	mS	
Over-Charge Protection R	e Voltage elease (OVPR)	3.6		±50mV	V	
Over-Discha Voltage Prot		2.4		±80mV	V	
Over-lappin	9	20		±6	mS	
Over-Discha Protection R	rge Voltage elease (UVPR)	2.50-2.60			V	
Over-Curren Protection (C		800		±10	A	
Over-Curren Delay Time (		30		±5	mS	
Over-Discha Protection R		Recovering after o	cutting off the l	load		_
Over-Curren Protection R		Recovering after o	cutting off the l	oad		
Short circuit protection	t current	Enable				
Short circuit protection de		200	600	±100	uS	
Short circuit Release	protection	Recovering af	fter cutting	off the load		
Discharging	Temperature	75/167	External	±5	°C/°F	
Discharging Protection R	Temperature elease	70/158		±10	°C/°F	
Discharge pr temperature	rotection recovery method	Automatic recov	very			
charging Ter	nperature					
charging Ter Protection R						
Cell balance						
Bleed StartP	oint	71/159.8		±10mA	°C/°F	
Bleed Currer	nt					
Balance Mode         Charging Auto Active Balance						
Idle mode		≤ 5uA			uA	3
Main loop el	ectrify resistance	MAX: 7mΩ			mΩ	
PCBA Size		155 (±0.5) ×16	(±0.5) ×80	(±0.5)	mm	
Data Storage	e	Cycle quantity dat	a storage reco	rd by Bluetooth		

### **BENEFITS OF LITHIUM**

Lithium offers several performance advantages over Lithium Sealed Lead Acid (SLA) equivalents. This series of lithium iron phosphate batteries adopts a high rate prismatic cell solution, the capacity is independent of the discharge rate and provides ultra-high constant power throughout the discharge process. The degradation of this lithium battery at high temperature is significantly reduced compared to SLA.

At room temperature, the cycle life of lithium is ten times longer than that of SLA.

Finally, lithium battery charging follows a similar charging curve as SLA, constant current and constant voltage (CC/CV). However, lithium can be charged faster without maintenance floating charges. It is recommended to use a professional LIFEP04 charger, which is more conducive to maximize the cycle life of lifep04 battery.

#### MS TECHNICAL SPECIFICATIONS

Cell model	LFP/MT165A
Cell type	Prismatic cell
Nominal Capacity (0.5C)	165A
Standard C/Discharge Current	0.5C/1C 80A/165A
Max Cntinuous Discharge Current	2C / 300A
Over-charge	
Over-charge protection voltage for each cell	3.65V
Over-charge release voltage for each cell	3.6 V
Over-charge release method	Protection releases when all cell voltages drop below the over-charge release voltage
Over-discharge	
Over-discharge protection voltage for each cell	2.4v
Over-discharge release voltage for each cell	2.8v
Over-discharge release method	Protection releases upon charging
Over current	
Discharge over current protection	600-800 A
Over-current delay time	50-200 mS
Over current release condition	Protection releases upon removing load and charging
Battery temperature	
Over-temperature protection	65±5°C
Release temperature	50±5°C
Short circuit protection	
Function condition	External short circuit
Short circuit delay time	200 ms
Release condition	Protection releases upon removing short circuit and charging

### **FURTHER INFORMATION**

Please refer to our website http://Legacylithium.com or email us at http://Legacylithium.comor a complete range of useful downloads, such as product catalogs, material safety data sheets (MSDS), ISO certification, etc.



## LITHIUM-48165 48V 165AH

Rechargable Lithium Battery - LIFEP04 LEGACY LITHIUM - 48V Bluetooth® Enabled Series

### **BATTERY FEATURES**

- Super safe lithium iron phosphate (LiFePO4) chemistry reducing the risk of explosion or combustion due to high impact, over-charging, or short circuit situation
- Bluetooth<sup>®</sup> communication capability for battery status
- Battery Management System (BMS) controls the parameters of the battery to provide optimum safety by protecting against over-charging and over-discharging
- BMS enhanced design balances the battery cells, optimizing battery performance
- Delivers twice the power of lead-acid batteries, even at high discharge rates, while maintaining high energy capacity
- Faster charging and lower self-discharge
- Up to 10 times more cycles than lead-acid batteries
- Compact and only 40% of the weight of comparable lead acid batteries
- Rugged impact resistant Stainless Box

### APPROVALS

- UL 1642 cell certificate
- UN 38.3 Certified
- MSDS

## LEGACY LITHIUM 48V LIFEPO4 BATTERY SERIES

Legacy lithium 48v LIFEPO4 Battery series, adopt the high discharge rate cell, including 10kw discharge BMS system solution, with an intelligent battery management system that monitors current and

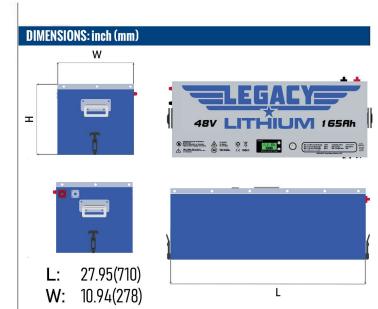
voltages during charge and discharge. This protects the battery from over-charge and over-discharge.

The BMS embeds smart balancing algorithms that control all cell voltages in the battery, making sure they are constantly at the same voltage level, optimizing battery capacity.

BLUETOOTH® ENABLED Monitor the State of Charge (SoC), State of Health (SoH), current, capacity, temperature, number of cycles, and voltage levels of the battery and individual cells from Andriod / IOS App

### APPLICATIONS

- Solar UGV
- Mobility Transport
- UTV'S **Golf Carts**



#### H: 9.48(241) **PERFORMANCE SPECIFICATIONS** Nominal Voltage 51.2V **Rated Capacity** 165AH at a Constant Current of 0.5C to 40V Stored Energy (Wh) 8448 Wh Cycle Life (at 100% DOD) 3000 Cycles Approximate Weight 143.3 lbs (65 kg) Internal Resistance ≤20.0 m0 Max Charge Current 100 A Max Continuous/Discharge Current 200A / 600A (5S) Charge Cut-off Voltage 58.4 V **Recommended Discharge Cut-Off** 40 V Voltage Up to 4 batteries can be connected in parallel Series & Parallel Connection **Operating Temperature Range** Charge 32°F (0°C) to 140°F (60°C) Discharge 14°F (-10°C) to 140°F (60°C) Recommended 59°F (15°C) to 95°F (35°C) Self-Discharge Rate $\leq 3\%$ /month Long Term Storage Charge every 6 months or as soon as Long Term Storage OCV is 12.8V (approximately 20% SOC) Power Sonic Chargers Contact us for information on a suitable charger Life Expectancy (years) 5 years at one cycle per day

Short Circuit Protection	Automatically recover after removal of short
Dimensional Tolerances	max torque 15 ft/lbs
Terminal Type	M8
Cooling Way	Natural air cooling
Heat Function	Cell Heater Technology
Waterproofing Standard	IP66

### http://Legacylithium.com

MSDS PASSED



# LITHIUM-48165 <sup>48V</sup>

Rechargable Lithium Battery – LIFEP04 LEGACY LITHIUM – 48V Bluetooth® Enabled Series



Details		Min	Тур	Мах	Error	Unit
Battery Gas		3.20V lithium bat				
Battery Link		16S1P				
Loop capabil	ity	No				
Input Chargi	ng Voltage		58.4		±1%	V
Input Chargin	ng Current		< 50			A
Output Disch	arging Voltage		51.2v			۷
Continuous Discharging			≤200			A
Ambient	Operating Temperature	-20	25	60		°C
Condition	Humidity (No Water-Drop)	0%		90%		RH
Storage Condition	Temperature	-20		85		°C
	Humidity (No Water-Drop) 1 Parameters (fo	0% r Individua	l Cell)	90%		RH
Over-Charge			reen			
Voltage Prot		3.65		±25mV	۷	
Over-flashin	g	1000		±300	mS	
Over-Charge Protection R	Voltage elease (OVPR)	3.6		±50mV	۷	
Over-Discha Voltage Prot		2.4		±80mV	۷	
Over-lappinç	]	20		±6	mS	
Over-Discha Protection R	rge Voltage elease (UVPR)	2.50-2.60			٧	
Over-Curren Protection (O		800		±10	A	
Over-Curren Delay Time (I		30		±5	mS	
Over-Discha Protection R		Recovering after	cutting off the l	oad		
Over-Curren Protection R		Recovering after	cutting off the l	oad		
Short circuit protection	current	Enable				
Short circuit protection de		200	600	±100	uS	
Short circuit Release	protection	Recovering a	ifter cutting	off the load	1	
Discharging	Temperature	75	external	±5	°C	
Discharging Protection R	Temperature elease	70		±10	°C	
Discharge pr temperature	otection recovery method	Automatic reco	overy			
charging Ten	nperature					
charging Ten Protection Re						
Cell balance						
Bleed StartP	oint	71		±10mA	°C	
Bleed Curren	N.C.	01				
Balance Mod	e	Charging Auto Ac	ctive Balance			
Idle mode		≤5uA			uA	
	ectrify resistance	MAX: 7mD			mΩ	
PCBA Size		190 (±0.5) ×12			mm	
Data Storage	9	Cycle quantity da	ata storage reco	rd by Bluetooth		

### **BENEFITS OF LITHIUM**

Lithium offers several performance advantages over Lithium Sealed Lead Acid (SLA) equivalents. This series of lithium iron phosphate batteries adopts a high rate prismatic cell solution, the capacity is independent of the discharge rate and provides ultra-high constant power throughout the discharge process. The degradation of this lithium battery at high temperature is significantly reduced compared to SLA.

At room temperature, the cycle life of lithium is ten times longer than that of SLA.

Finally, lithium battery charging follows a similar charging curve as SLA, constant current and constant voltage (CC/CV). However, lithium can be charged faster without maintenance floating charges. It is recommended to use a professional LIFEP04 charger, which is more conducive to maximize the cycle life of lifep04 battery.

### BMS TECHNICAL SPECIFICATIONS

Cell model	LFP/MT165A
Cell type	Prismatic cell
Nominal Capacity (0.5C)	165A
Standard C/Discharge Current	0.5C/1C 80A/165A
Max Cntinuous Discharge Current	2C / 300A
Over-charge	
Over-charge protection voltage for each cell	3.65V
Over-charge release voltage for each cell	3.6 V
Over-charge release method	Protection releases when all cell voltages drop below the over-charge release voltage
Over-discharge	
Over-discharge protection voltage for each cell	2.4v
Over-discharge release voltage for each cell	2.8v
Over-discharge release method	Protection releases upon charging
Over current	
Discharge over current protection	600-800 A
Over-current delay time	50-200 mS
Over current release condition	Protection releases upon removing load and charging
Battery temperature	
Over-temperature protection	65±5℃
Release temperature	50±5°C
Short circuit protection	
Function condition	External short circuit
Short circuit delay time	200 ms
Release condition	Protection releases upon removing short circuit and charging

### **FURTHER INFORMATION**

Please refer to our website http://Legacylithium.com or email us at http://Legacylithium.com for a complete range of useful downloads, such as product catalogs, material safety data sheets (MSDS), ISO certification, etc.

## LITHIUM-48125 48V 125AH

Rechargable Lithium Battery - LIFEP04 LEGACY LITHIUM - 48V Bluetooth® Enabled Series

### **BATTERY FEATURES**

- Super safe lithium iron phosphate (LiFePO4) chemistry reducing the risk of explosion or combustion due to high impact, over-charging, or short circuit situation
- Bluetooth<sup>®</sup> communication capability for battery status
- Battery Management System (BMS) controls the parameters of the battery to provide optimum safety by protecting against over-charging and over-discharging
- BMS enhanced design balances the battery cells, optimizing battery performance
- Delivers twice the power of lead-acid batteries, even at high discharge rates, while maintaining high energy capacity
- Faster charging and lower self-discharge
- Up to 10 times more cycles than lead-acid batteries
- Compact and only 40% of the weight of comparable lead acid batteries
- Rugged impact resistant Stainless Box

### **APPROVALS**

- UL 1642 cell certificate
- UN 38.3 Certified
- MSDS

## LEGACY LITHIUM 48V LIFEPO4 BATTERY SERIES

PASSED

MSDS

Legacy lithium 48v LIFEPO4 Battery series, adopt the high discharge rate cell, including 10kw discharge BMS system solution, with an intelligent battery management system that monitors current and voltages during charge and discharge. This protects the battery from over-charge and over-discharge.

The BMS embeds smart balancing algorithms that control all cell voltages in the battery, making sure they are constantly at the same voltage level, optimizing battery capacity.

BLUETOOTH® ENABLED Monitor the State of Charge (SoC), State of Health (SoH), current, capacity, temperature, number of cycles, and voltage levels of the battery and individual cells from Andriod / IOS App

### **APPLICATIONS**

- SolarUGV
- Mobility Transport
- Golf Carts UTV'S



## **W**: 10.94(278) **H**: 9.48(241)

PERFORMANCE SPECIFICATIONS	
Nominal Voltage	51.2V
Rated Capacity	125AH at a Constant Current of 0.5C to 40V
Stored Energy (Wh)	6400 Wh
Cycle Life (at 100% DOD)	3000 Cycles
Approximate Weight	132.3 lbs (60 kg)
Internal Resistance	≤20.0 mΩ
Max Charge Current	100 A
Max Continuous/Discharge Current	200A / 600A (5S)
Charge Cut-off Voltage	58.4 V
Recommended Discharge Cut-Off Voltage	40 V
Series & Parallel Connection	Up to 4 batteries can be connected in parallel
<b>Operating Temperature Range</b> Charge Discharge Recommended	32°F (0°C) to 140°F (60°C) 14°F (-10°C) to 140°F (60°C) 59°F (15°C) to 95°F (35°C)
Self-Discharge Rate	≤3%/month
Long Term Storage	Long Term Storage Charge every 6 months or as soon as OCV is 12.8V (approximately 20% SOC)
Power Sonic Chargers	Contact us for information on a suitable charger
Life Expectancy (years)	5 years at one cycle per day
Short Circuit Protection	Automatically recover after removal of short
Dimensional Tolerances	max torque 15 ft/lbs
Terminal Type	M8
Cooling Way	Natural air cooling
Heat Function	Cell Heater Technology
Waterproofing Standard	IP66

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# LITHIUM-48125 <sup>48V</sup>

Rechargable Lithium Battery – LIFEP04 LEGACY LITHIUM – 48V Bluetooth® Enabled Series



Details		Min	Тур	Мах	Error	Unit
Battery Gas		3.20V lithium ba				
Battery Link		16S1P				
Loop capabili	ity	No				
Input Chargin	ng Voltage		58.4		±1%	۷
Input Chargin	ng Current		< 50			А
Output Discha	arging Voltage		51.2v			۷
Continuous C Discharging C			≤200			А
Ambient	Operating Temperature	-20	25	60		°C
Condition	Humidity (No Water-Drop)	0%		90%		RH
Storage Condition	Temperature	-20		85		°C
	Humidity (No Water-Drop)	0%		90%		RH
	Parameters (fo	r Individua	it Cell)			
Over-Charge Voltage Prote		3.65		±25mV	۷	
Over-flashing	9	1000		±300	mS	
Over-Charge Protection Re		3.6		±50mV	٧	
Over-Dischar Voltage Prote		2.4		±80mV	V	
Over-lapping		20		±6	mS	
Over-Dischar Protection Re		2.50-2.60			۷	
Over-Current Protection (O		800		±10	A	
Over-Current Delay Time (C		30		±5	mS	
Over-Dischar Protection Re		Recovering after cutting off the load				
Over-Current Protection Re		Recovering after	cutting off the l	oad		
Short circuit protection	current	Enable				
Short circuit protection de		200	600	±100	uS	
Short circuit Release	protection	Recovering a	after cutting	off the load	1	
Discharging 1	lemperature	75	external	±5	°C	
Discharging 1 Protection Re		70		±10	°C	
Discharge pro temperature	otection recovery method	Automatic reco	overy			
charging Tem	nperature					
charging Ten Protection Re	nperature elease					
Cell balance						
Bleed StartPo	pint	71		±10mA	°C	
Bleed Curren	t					
Balance Mode	e	Charging Auto A	ctive Balance			
Idle mode		≤5uA			uA	
Main loop ele	ectrify resistance	MAX: 7mO			mΩ	
PCBA Size		190 (±0.5) ×12	0 (±0.5) ×35	(±0.5)	mm	
Data Storage		Cycle quantity da	ata storage reco	rd by Bluetooth		

### **BENEFITS OF LITHIUM**

Lithium offers several performance advantages over Lithium Sealed Lead Acid (SLA) equivalents. This series of lithium iron phosphate batteries adopts a high rate prismatic cell solution, the capacity is independent of the discharge rate and provides ultra-high constant power throughout the discharge process. The degradation of this lithium battery at high temperature is significantly reduced compared to SLA.

At room temperature, the cycle life of lithium is ten times longer than that of SLA.

Finally, lithium battery charging follows a similar charging curve as SLA, constant current and constant voltage (CC/CV). However, lithium can be charged faster without maintenance floating charges. It is recommended to use a professional LIFEP04 charger, which is more conducive to maximize the cycle life of lifep04 battery.

### BMS TECHNICAL SPECIFICATIONS

Cell model	LFP/MT125A
Cell type	Prismatic cell
Nominal Capacity (0.5C)	125A
Standard C/Discharge Current	0.5C/1C 60A/125A
Max Cntinuous Discharge Current	3C / 350A
Over-charge	
Over-charge protection voltage for each cell	3.65V
Over-charge release voltage for each cell	3.6 V
Over-charge release method	Protection releases when all cell voltages drop below the over-charge release voltage
Over-discharge	
Over-discharge protection voltage for each cell	2.4v
Over-discharge release voltage for each cell	2.8v
Over-discharge release method	Protection releases upon charging
Over current	
Discharge over current protection	600-800 A
Over-current delay time	50-200 mS
Over current release condition	Protection releases upon removing load and charging
Battery temperature	
Over-temperature protection	65±5°C
Release temperature	50±5°C
Short circuit protection	
Function condition	External short circuit
Short circuit delay time	200 ms
Release condition	Protection releases upon removing short circuit and charging

### **FURTHER INFORMATION**

Please refer to our website http://Legacylithium.com or email us at http://Legacylithium.com for a complete range of useful downloads, such as product catalogs, material safety data sheets (MSDS), ISO certification, etc.



## **LITHIUM-4886**

Rechargable Lithium Battery - LIFEP04 LEGACY LITHIUM - 48V Bluetooth® Enabled Series

### **BATTERY FEATURES**

- Super safe lithium iron phosphate (LiFePO4) chemistry reducing the risk of explosion or combustion due to high impact, over-charging, or short circuit situation
- Bluetooth<sup>®</sup> communication capability for battery status
- Battery Management System (BMS) controls the parameters of the battery to provide optimum safety by protecting against over-charging and over-discharging
- BMS enhanced design balances the battery cells, optimizing battery performance
- Delivers twice the power of lead-acid batteries, even at high discharge rates, while maintaining high energy capacity
- Faster charging and lower self-discharge
- Up to 10 times more cycles than lead-acid batteries
- Compact and only 40% of the weight of comparable lead acid batteries
- Rugged impact resistant Stainless Box

### APPROVALS

- UL 1642 cell certificate
- UN 38.3 Certified
- MSDS

## LEGACY LITHIUM 48V LIFEPO4 BATTERY SERIES

PASSED

MSDS

Legacy lithium 48v LIFEPO4 Battery series, adopt the high discharge rate cell, including 10kw discharge BMS system solution, with an intelligent battery management system that monitors current and voltages during charge and discharge. This protects the battery from over-charge and over-discharge.

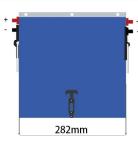
The BMS embeds smart balancing algorithms that control all cell voltages in the battery, making sure they are constantly at the same voltage level, optimizing battery capacity.

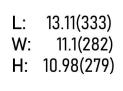
BLUETOOTH® ENABLED Monitor the State of Charge (SoC), State of Health (SoH), current, capacity, temperature, number of cycles, and voltage levels of the battery and individual cells from Andriod / IOS App

### APPLICATIONS

- Solar UGV
- Mobility Transport
- UTV'S **Golf Carts**

### **DIMENSIONS: inch (mm)**







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	333mm	ļ

#### **PERFORMANCE SPECIFICATIONS** Nominal Voltage 51.2V **Rated Capacity** 86AH at a Constant Current of 0.5C to 40V Stored Energy (Wh) 4403 Wh Cycle Life (at 100% DOD) 3000 Cycles Approximate Weight 94.8 lbs (43kg) Internal Resistance ≤20.0 m0 Max Charge Current 50 A Max Continuous/Discharge Current 200A / 300A (5S) Charge Cut-off Voltage 58.4 V **Recommended Discharge Cut-Off** 40 V Voltage Up to 4 batteries can be connected in parallel Series & Parallel Connection **Operating Temperature Range** Charge 32°F (0°C) to 140°F (60°C) Discharge 14°F (-10°C) to 140°F (60°C) Recommended 59°F (15°C) to 95°F (35°C) Self-Discharge Rate $\leq 3\%$ /month Long Term Storage Charge every 6 months or as soon as Long Term Storage OCV is 12.8V (approximately 20% SOC) **Power Sonic Chargers** Contact us for information on a suitable charger Life Expectancy (years) 5 years at one cycle per day Short Circuit Protection Automatically recover after removal of short **Dimensional Tolerances** max torque 15 ft/lbs Terminal Type M8 Natural air cooling **Cooling Way** Heat Function Cell Heater Technology Waterproofing Standard IP66

279mm



# LITHIUM-4886 48V

Rechargable Lithium Battery – LIFEP04 LEGACY LITHIUM – 48V Bluetooth® Enabled Series



Details		Min	Тур	Мах	Error	Unit	
Battery Gas		3.20V lithium batt		Mux		onic	
Battery Link		16S1P	,				
Loop capability		No					
Input Charging Voltage			58.4		±1%	V	
Input Charging Current			< 50			А	
Output Discharging Voltage			51.2v			٧	
Continuous Output Discharging Current			≤200			A	
Ambient	Operating Temperature	-20/-4	25	60/140		°C/°F	
Condition Storage Condition	Humidity (No Water-Drop)	0%		90%		RH	
	Temperature	-20/-4		85/185		°C/°F	
	Humidity (No Water-Drop)	070	0-11	90%		RH	
Protection Parameters (for Individual Cell)							
Over-Charge Voltage Protection (OVP)		3.65		±25mV	۷		
Over-flashing		1000		±300	mS		
Over-Charge Voltage Protection Release (OVPR)		3.6		±50mV	۷		
Over-Discha Voltage Prot		2.4		±80mV	٧		
Over-lappinį	]	20		±6	mS		
Over-Discharge Voltage Protection Release (UVPR)		2.50-2.60			۷		
Over-Current Discharge Protection (OCDP)		800		±10	A		
Over-Current Protection Delay Time (OCPDT)		30		±5	mS		
Over-Discharge Recovering after cutting off the load Protection Release							
Over-Curren Protection R		Recovering after cutting off the load					
Short circuit protection	current	Enable					
Short circuit protection de		200	600	±100	uS		
Short circuit protection Release		Recovering after cutting off the load					
Discharging	Temperature	75/167	External	±5	°C/°F		
Discharging	Temperature	70/158	LACTION	±10	°C/°F		
Protection Release Discharge protection temperature recovery method		Automatic reco	very	-10			
charging Ter							
charging Ter Protection R							
Cell balance							
Bleed StartP		71/159.8		±10mA	°C/°F		
Bleed Current		7 1/ 137.0		TIOIIIA	C/ F		
Balance Mode		Charging Auto Active Balance					
Idle mode		≤5uA			uA		
Main loop electrify resistance		MAX: 7mû			mΩ		
PCBA Size		190 (±0.5) ×120 (±0.5) ×35 (±0.5)		mm			
Data Storage	)	Cycle quantity data storage record by Bluetooth					

### **BENEFITS OF LITHIUM**

Lithium offers several performance advantages over Lithium Sealed Lead Acid (SLA) equivalents. This series of lithium iron phosphate batteries adopts a high rate prismatic cell solution, the capacity is independent of the discharge rate and provides ultra-high constant power throughout the discharge process. The degradation of this lithium battery at high temperature is significantly reduced compared to SLA.

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#### BMS TECHNICAL SPECIFICATIONS

Cell model	LFP/MT86A			
Cell type	Prismatic cell			
Nominal Capacity (0.5C)	86A			
Standard C/Discharge Current	0.5C/1C 40A/86A			
Max Cntinuous Discharge Current	3C / 250A			
Over-charge				
Over-charge protection voltage for each cell	3.65V			
Over-charge release voltage for each cell	3.6 V			
Over-charge release method	Protection releases when all cell voltages drop below the over-charge release voltage			
Over-discharge				
Over-discharge protection voltage for each cell	2.4v			
Over-discharge release voltage for each cell	2.8v			
Over-discharge release method	Protection releases upon charging			
Over current				
Discharge over current protection	600-800 A			
Over-current delay time	50-200 mS			
Over current release condition	Protection releases upon removing load and charging			
Battery temperature				
Over-temperature protection	65±5℃			
Release temperature	50±5°C			
Short circuit protection				
Function condition	External short circuit			
Short circuit delay time	200 ms			
Release condition	Protection releases upon removing short circuit and charging			

### FURTHER INFORMATION

Please refer to our website http://Legacylithium.com or email us at http://Legacylithium.com for a complete range of useful downloads, such as product catalogs, material safety data sheets (MSDS), ISO certification, etc.