



## U-Charge® XP

### Battery Modules

U-Charge® XP is a range of 12, 18 & 36 volt Lithium Iron Magnesium Phosphate battery modules, offering intrinsic safety with twice the run-time and less than half the weight of similar sized lead-acid battery modules.

#### Overview

U-Charge® XP modules are ideal when Advanced Energy Systems are required. Excellent float and cycle life with zero maintenance offers end-users significant cost of ownership savings and complete peace of mind, through safety inherent in Valence Lithium Phosphate chemistry. Tens of thousand U-Charge® systems have been deployed in a range of equipment since 2006.

The U-Charge® XP Battery Management System is also designed to offer excellent command and control functionality (including remote monitoring) when coupled with U-Charge® XP Battery Modules.

Valence monitoring and diagnostic kits are also available enabling system data recording and detailed performance status indicators.

#### Features

- ⊕ Over 2500 cycles at 100% DOD
- ⊕ Exceptional voltage stability
- ⊕ Standard voltage range from 12V - 700V
- ⊕ Maintenance free
- ⊕ Inter module balancing
- ⊕ Can be charged using most standard lead-acid chargers
- ⊕ Communication of monitored data via Battery Management System (BMS)
- ⊕ Rugged mechanical design
- ⊕ Flame retardant plastics
- ⊕ LED battery status indicator
- ⊕ Carrying Straps (U24, U27, UEV)
- ⊕ Manufactured in standard BCI sizes

Specifications	U1-12XP	U24-12XP	U27-12XP	UEV-18XP	U27-36 XP	
Nominal Module Voltage	12.8 V	12.8 V	12.8 V	19.2 V	38.4 V	
Nominal Capacity (C/5, 23°C)	40 Ah	110 Ah	138 Ah	69 Ah	46Ah	
Weight (approximate) kg	6.5 kg	15.8 kg	19.5 kg	14.9 kg	19.6 kg	
Weight (approximate) lbs	14.3 lbs	34.8 lbs	42.9 lbs	32.8 lbs	43.1 lbs	
Dimension incl. Terminals LxWxH (mm)	197 x 131 x 182	260 x 172 x 225	306 x 172 x 225	269 x 148 x 245	306 x 172 x 225	
Dimension incl. Terminals LxWxH (inches)	7.76 x 5.12 x 7.17	10.2 x 6.77 x 8.86	12.0 x 6.77 x 8.86	10.6 x 5.83 x 9.65	12.0 x 6.77 x 8.86	
BCI Group Number	U1R	Group 24	Group 27	N/A	Group 27	
Terminals, Female-Threaded	M6 x 1.0	M8 x 1.25	M8 x 1.25	M8 x 1.25	M8 x 1.25	
Specific Energy	79 Wh/kg	89 Wh/kg	91 Wh/kg	89 Wh/kg	91 Wh/kg	
Energy Density	110 Wh/l	139 Wh/l	148 Wh/l	136 Wh/l	148 Wh/l	
Standard Discharging @ 25°C	Max. Continuous Load Current	80 A	150 A	150 A	120 A	90 A
	Peak Load Current (30 sec).	120 A	300 A	300 A	200 A	135 A
	Cut-off Voltage	10 V	10 V	10 V	15 V	30 V
Standard Charging	Max. Charge Voltage	14.6 V	14.6 V	14.6 V	21.9 V	43.8 V
	Float Voltage	13.8 V	13.8 V	13.8 V	20.7 V	41.4 V
	Recommended Current C/2	20A	55A	70A	35A	23A
	Charge Time C/2 *	2.5 hrs	2.5 hrs	2.5 hrs	2.5 hrs	2.5 hrs
DC internal resistance (max)	15 mΩ	6 mΩ	5 mΩ	10 mΩ	25 mΩ	
Part Number	1004434	1004425	1004428	1004431	1005199	

## Common specifications

Discharge temperature	-10°C to 50°C
Charge temperature	0°C to 45°C
Storage temperature	-40°C to 50°C
Operating humidity	5% to 95%, non-condensing
Water/dust resistance	IP56
Certifications	FCC Class B, CE, IEC 62133 (U1-12XP and cells) UL1642 (cells only)
Shipping Classification	UN 3480, Class 9

## Accessories

The Battery Management System maintains battery to battery balance control, direct control capability for up to four contactors, and monitoring and control of data systems.

- ⊕ U-BMS-LV operates at 10V - 150V
- ⊕ U-BMS-HV operates at 100V - 450V
- ⊕ U-BMS-SHV operates at 350V - 700V

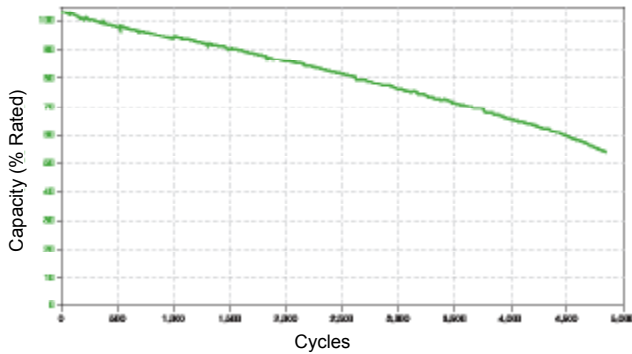


## For further information:

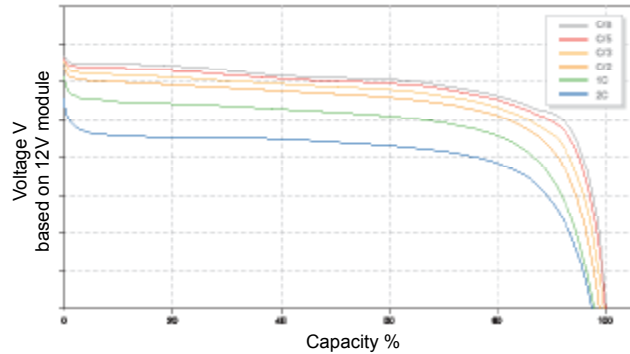
Please refer to separate datasheet on U-BMS products or visit [www.valence.com](http://www.valence.com)

## U-Charge XP® Battery Module data

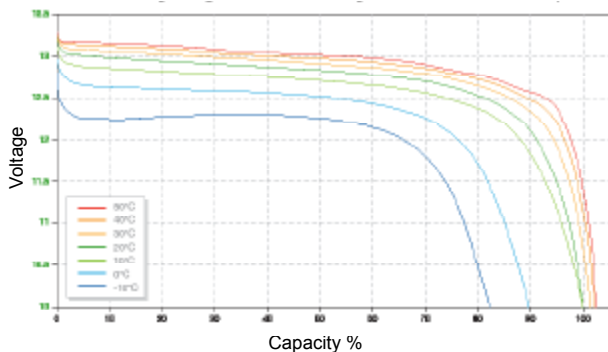
U-Charge® Discharge Capacity Performance at 23°C  
Charged CC 20A to 14.6V, CV @14.6 to 1A  
Discharged 20A to 10.5V; Cycled 42 Months



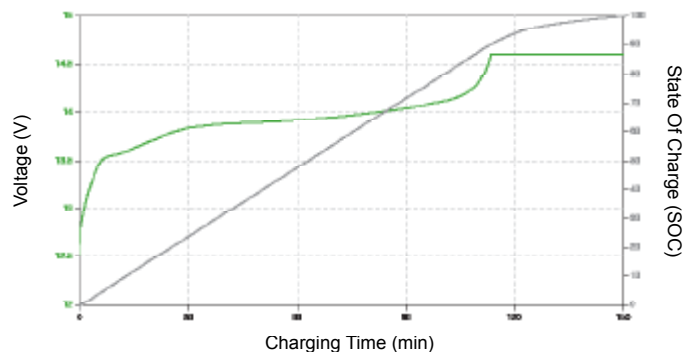
U-Charge® Voltage Profiles at Various Rates  
23°C Ambient Temperature



U-Charge® Discharge Voltage Profiles at C/2 Discharge Rate  
Various Ambient Temperatures



Typical U-Charge® C/2 Charging Voltage and SOC Profiles  
23°C Ambient Temperature



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