



News Release

January 18, 2018

GS Yuasa Corporation

**GS Yuasa Lithium Power Completes Qualification of a New Modular, Scalable Lithium Ion Battery for Spacecraft**

Roswell, GA – GS Yuasa Lithium Power (“GYLP”), the US subsidiary of GS Yuasa Corporation (Tokyo Stock Exchange: 6674) announced today the availability of a new, space-qualified lithium ion (“Li-ion”) battery based on the existing/successful LSE190 cell manufactured by GS Yuasa Technology (“GYT”) in Kyoto, Japan.

A 12-cell configuration of the MA190 battery module successfully completed qualification testing including shock, sine and random vibration, and thermal vacuum testing. The MA190 can be assembled to contain 6 to 12 LSE190 cells per module with flexibility to connect cells in parallel. For qualification, a 12-cell module was tested because its thermal behavior and environmental tolerance envelopes those of smaller module configurations.

The LSE190 is part of GYT’s generation III Li-ion family of cells. It has been qualified to NASA JSC 20793 “Crewed Space Vehicle Battery Safety Requirements” and has accrued significant spaceflight heritage in LEO and GEO regimes including multiple human-rated missions. The LSE190 is the largest of five space-qualified wound prismatic cell sizes offered by GS Yuasa and represents the portfolio’s lowest cost in terms of dollars per watt or watt-hour.

“Maximizing the accessibility of GYT’s industry leading space Li-ion technology in North America through high TRL and complete battery offerings continues to be GYLP’s focus” said Bill Moll, GYLP President. “Developed to complement GYT Li-ion based batteries available from our partner EaglePicher Technologies (Joplin, MO), the MA190 reflects our effort to bring the best possible value to our customers.”

The MA190 module was designed to support LEO, MEO and GEO missions and provides the flexibility and scalability needed for optimal alignment with system requirements. Modules can be configured and deployed in battery systems with nominal voltages from 22 to more than 100 and support spacecraft power from 1kW to more than 30kW.

Features of the MA190 include:

- Individual cell temperature sensing
- Redundant individual cell voltage sensing
- Protected telemetry connections
- Cell balancing connections
- Redundant cell heater circuits
- Optional cell bypass capability

For detailed specifications and performance information, please visit [www.gsyuasa-lp.com/...](http://www.gsyuasa-lp.com/)

### **GS Yuasa Lithium Power**

GS Yuasa is one of the world's leading battery manufacturers for automotive, telecom, and industrial applications and has produced commercial lead acid batteries for more than one hundred years. GS Yuasa manufactures a variety of specialty battery technologies, among them lithium ion, nickel-metal hydride, silver zinc and thermal batteries.

GS Yuasa Lithium Power, Inc. is the United States subsidiary of GS Yuasa focused on large format lithium ion battery system manufacturing for North American customers. Primary products are lithium ion battery systems for aerospace, defense, commercial, and industrial applications.

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