



Joystick controls sails and bow thrust for the worlds largest single-masted yacht

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Mirabella V, the largest single-masted yacht and most exclusive in the world, is using Penny + Giles JC150 joysticks in a number of applications including to control the bow thrust and the winch controls for raising and furling the sails. Chosen for its proven potentiometer technology, ergonomic design and IP rating, **JC150** is a large, robust, single-axis joystick which offers excellent repeatability.

Costing £40 million, the 75m long luxury yacht has a mast height of 90m, which is twice as high as Nelson's Column and 50% taller than any other mast built, and a sail area of 1,900m². It is the first of its kind to be built by VT Shipbuilding and following the final

successful sailing and mechanical/electrical trials the yacht has been handed over to owner Joe Vittoria, former head of Avis, and is now in the Mediterranean. Costing £140,000 a week to charter, she can carry 12 passengers who benefit from a 600 bottle wine cellar, two cinemas, a fully equipped gym and a garage which houses dinghies, jet skis, windsurfers and diving equipment.

Penny + Giles has supplied a total of 25 joysticks to Mirabella V. Three joysticks control the bow thrust, and there are two sets of 11 joysticks located at the sailing control panels at each helm position (port and starboard). Developed for use in those applications where lever strength and handle functionality are paramount, the joysticks use proven potentiometer technology to control the movement of the winches to position the sails. The joysticks are reliable, because the technology is inherently stable and the JC150 offers excellent repeatability. There is no need for recalibration and the joystick has an expected life in excess of five million cycles, and can withstand forces up to 300N applied to the handle.

"There were a number of key factors in determining which joysticks to use," comments Peter Medcalf, Electrical Design Engineer, VT Shipbuilding. "The joysticks needed to be weather resistant, functional and look good too; the JC150 matched all these criteria."

The joysticks are situated on deck and are exposed to the harsh weather conditions and a high IP rating is essential to ensure the mechanical/electrical parts are sealed and protected from ingress of rain and sea-water.

"The owner requested that no fixing bolts show on deck," explains Mr Medcalf. "Together we came up with a solution to mount them from underneath the control panel. Penny + Giles has been very accommodating and flexible in working to our specific requirements."

Designed for use with an electronic controller, the conductive plastic potentiometer track in the JC150 generates analogue and switched reference

signals, proportional to the distance and direction over which the handle is moved. The signal is then passed to the machinery control system and the winches and bow thrust are positioned accordingly.

The functionality of the JC150 can be increased by the selection of a variety of ergonomically designed handles that can offer push-button and rocker switch functions, membrane keypads and LED displays. 'Person present' switches or center lock mechanisms can also be specified to improve the integrity of the control system without compromising the quality and mechanical design and the long operational life.

Its rectangular profile below the panel makes it ideal for mounting side-by-side. Installation time has been reduced by terminating all signals to and from the joystick in a single electronic connector.

"JC150 was ideal for this application where robustness and adaptability were important," comments Ray New, Managing Director, Penny + Giles. "It is versatile and is easily tailored to many applications for example, it is ideally suited to control access platforms, agricultural, construction and material handling. This is the first time that Penny + Giles has supplied joysticks to the luxury yacht market, and we are pleased with the results as the joysticks have passed all the mechanical and electrical tests without any problems."