Case Study:

Aquaculture and Fisheries

Flexible, Customizable and Rugged Radio Remote Control solution

Image: www. http://www.aqualifeproducts.com

Operating fish transfer pump systems from a long distance and often in harsh conditions is no easy business demands a system that is both reliable, accurate and operator friendly. Find out how Scanreco worked closely with Spencer Fluid Power to create solutions that boost efficiency, safety and profitability.

Some results after implementation of the Spencer and Scanreco solution:

- ↗ **90%** boost in effective radio frequency range
- * Capacity to ship to EU and international markets with 2.4 GHz radio frequency
- ↘ **25%** fewer field equipment replacements
- ↘ **50%** reduction in user error

The challenge

Magic Valley Heli-Arc & Mfg. (MVHA) is a manufacturer of the Aqua-Life Fish Transfer Pump System. Based in Twin Falls, Idaho, MVHA develops high-performance and cost-saving fish transfer technology for Aquaculture and Fish Farming. For over 30 years, MVHA has dedicated itself to the research, design, and manufacture of equipment for the harvest, transfer, and transport of live fish and shrimp.

The Aqua-Life Fish Pump System can be used for both non-submersible and submersible applications. In a typical application, the fish pump is placed into or next to a raceway, pond, or cage-pen with the hydraulic leads and outlet hose attached. The pump is then positioned to crowd or direct fish or shrimp into the pump intake chute using a screen-crowder, cutter seines, or shrimp pond drainage systems. A discharge hose is attached and runs from the pump to a dewatering device or a fish grader which can be mounted on top of a live-haul truck or trailer. Rugged and accurate wireless remote control is critical in these applications.

With the capability to fully customize and configure its label, the graphical display and firmware, both engineering teams determined that the Scanreco Rocket Flex platform would best meet MHVA's specific requirements for flexibility and toughness.

The G5 M19A Receiver with Proportional Control was implemented to facilitate accurate ramping of the proportional output required to control the fish transfer system. Furthermore, the Rocket Flex platform can be configured as a repeater network, effectively maximizing the coverage of the wireless network.

The Scanreco solution

Rocket Flex Proportional Remote Control System with branded label, 2.4 GHz radio frequency.

Requirements

Long distances

Although Scanreco G5 systems can typically operate at distances of up to 300 meters, MVHA needed to facilitate control of fish pump speed and priming at distances beyond 300 meters.

Harsh conditions

MHVA demanded functionality with minimal failure in wet, salty, humid, hot and cold operational environments.

Accuracy

MHVA required precise ramping of the proportional output to accurately control and monitor the proper flow of both water and fish.

System Feedback and Ease of Use

MVHA requested a branded remote control interface with a Graphical Display for system feedback to the operator and buttons robust enough to operated with heavy gloves and wet hands. Additionally, MVHA required that certain buttons be covered to reduce operator error.

International market

MVHA wanted the ability to sell its fish pump transfer systems with radio remote control in international markets.

Solutions

Repeater Network

Working with engineers from Spencer Fluid Power, Scanreco developed a radio repeater network to extend the effective range of the system. The Repeater unit extends the coverage area of the system by relaying the signals between the Transmitter and Receiver unit. In combination with cutting-edge radio transmission technologies like FHSS (Frequency Hopping Spread Spectrum), the Rocket Flex/G5 system with Repeater unit ensures stable wireless control of the fish pump at distances up to 1500 meters with line of sight.

Rocket Flex

With an operational temperature range of -25°C to +55°C / ~ -15°F to + 130°F and an ingresses protection rating of IP65, the Rocket Flex platform is designed from the ground up to perform in harsh and hostile environments.

Full control buttons

The speed PWM output was programmed with “Volume Control” ramping proportional functionality. The Output operates like a TV volume control. Pressing and releasing the increase button will increment the output value from OFF to MIN. Each press and release will increment the output by one step. Pressing and holding the increase button will ramp the output from OFF to MAX.

Customized interface and firmware

Working closely with MVHA, Spencer and Scanreco engineers created a completely customized remote control interface with custom button covers. Scanreco software engineers developed custom firmware to make the interface intuitive and easy to operate. MVHA is able to easily upload and custom program units prior to shipment to its customers.

2.4GHz solution

With the Rocket Flex’s 2.4 GHz radio frequency and EU safety certifications for E-Stop, MVHA can sell and service international markets like the European Union and the Mediterranean Region; vital markets for aquaculture.

Customized and functional systems – the way you want them to be

Scanreco works closely with customers to create fully customized and functional systems.

In this case, Magic Valley Heli-Arc & Mfg. approached Spencer Fluid Power to engineer hydraulic and electronic controls for the operation of their fish transfer pump systems. In turn, Spencer Fluid Power recommended Scanreco for reliable wireless remote control of these mission-critical systems.

www.aqualifeproducts.com

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This is Scanreco

- *Leading developer and supplier in radio remote control systems of machines and equipment.*
- *Supplier to leading OEMs and players in a number of different industries.*
- *Development and production take place in close collaboration with the customer to create individual systems with maximum benefit.*
- *About half a million systems sold worldwide.*
- *Scanreco was founded in 1984 in Södertälje, is privately owned and is still run by the founders.*
- *Scanreco has a large global network and subsidiaries in Germany and the USA.*

We are here to help you achieve!

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Questions about this case?

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