



## Case study

# VACON<sup>®</sup> 100 HVAC DRIVES AND ETHERNET – THE RIGHT CHOICE FOR WATER SUPPLY IN SEA LAPLAND

Meri-Lapin Vesi Oy acquires and supplies good quality water for household use in the Sea Lapland region, in the northernmost area of the Gulf of Bothnia in Finland. Founded in 1997, Meri-Lapin Vesi Oy has been using VACON AC drives to control pumps almost from day one. The company is currently upgrading its automation system, and is also replacing the VACON CX range of AC drives installed in 1998-1999 with new VACON 100 HVAC drives. Ethernet is used for all communication.

Meri-Lapin Vesi started upgrading its automation system in 2011 and the project is scheduled to be finished in 2014. "We are retrofitting 26 water intake plants, five tailwater tanks, one water booster pump station and one water treatment plant. All radio modems, programmable logic and AC drives are being replaced," says Pekka Salo-oja, Operational Manager, Meri-Lapin Vesi Oy.

The water intake and delivery processes employ several dozen pumps. Controlling pumps with the help of AC drives brings several benefits, such as energy efficiency, improved process control and optimum pump control. In connection with upgrading the automation system, the VACON CX range of AC drives – which have served for about 15 years – are being replaced with VACON 100 HVAC drives in the power range 1-36 kW. In total, more than 70 VACON 100 HVAC drives will be installed at Meri-Lapin Vesi Oy's various sites. The enclosure

class will be IP21 or IP54, depending on the operating environment. The IP54 units can be installed directly on the wall at the plant, which brings space savings.

### Reliability is essential

The total length of the ground water intake network is about 157 km. Since it can be hard or even impossible to reach some of the distant plants when road and weather conditions are difficult in winter and the spring, the reliability of equipment becomes even more crucial.

"Our experiences of the VACON AC drives are positive. They are reliable and have a good price-quality ratio. In a retrofitting project where space is at a premium, the compact size of the drives is a major benefit. These factors were decisive when we made our choice of the AC drive supplier," says Pekka Salo-oja. "The first VACON 100 HVAC drives were installed in the spring of 2011, and they have operated well. Selecting a new range of drives from a familiar supplier made the change easy for us: we only needed some advice from Vacon's customer support, no training was necessary."

### All communication via Ethernet

The logic of the automation system at Meri-Lapin Vesi Oy uses Ethernet to control the VACON 100 HVAC drives, which have

Ethernet as a built-in functionality. The I/O cables of the old VACON CX drives can be taken out, which brings savings in material and installation costs. Each water intake plant may have 1-3 separate water intake wells, so there is a maximum of three AC drives at one plant.

The TCP/IP communications protocol is provided as standard in the VACON 100 HVAC drives. This enables Ethernet-based installation, control and remote diagnostics.

#### In detail

The **VACON 100 HVAC** is an AC drive in the power range of 0.55-160 kW, and for supply voltages of 230 V, 400 V or 480 V. The VACON 100 HVAC is designed specifically for the building automation industry, and can enhance pump, fan and compressor applications. Easy installation and efficient, trouble-free operation mean that just about anyone can commission the VACON 100 HVAC with a speedy return on investment guaranteed. BACnet IP and Modbus TCP via Ethernet and Modbus RTU, Metasys N2 and BACnet MSTP via RS485 are available as standard. The VACON 100 HVAC complies with the IEC/EN 61000-3-12 harmonics standard.

Founded in 1997, **Meri-Lapin Vesi Oy** is responsible for acquiring and supplying good quality water for household use to its partner municipalities Kemi, Tornio, Keminmaa and Tervola on the northernmost shores of the Gulf of Bothnia in Finland. The water delivery process to households is handled by the local water companies in each municipality. Meri-Lapin Vesi supplies about 9,000 cubic meters of water a day to its clients.



A VACON 100 HVAC drive at Meri-Lapin Vesi Oy's water intake plant. The VACON 100 HVAC drives are also available in IP54 enclosures, which can be installed directly on the wall at the plant. This brings space and cost savings. A high resolution graphic panel and installation wizard improve user-friendliness during installation and daily operation. Built-in fieldbus connections bring savings in investment costs.

Photos by Pekka Salo-oja

Vacon Oyj  
Runsorintie 7  
65380 Vaasa  
Finland  
Tel. +358 (0)201 2121  
Fax +358 (0)201 212 205  
Email. [vacon@vacon.com](mailto:vacon@vacon.com)  
[www.vacon.com](http://www.vacon.com)

**VACON**<sup>®</sup>  
DRIVEN BY DRIVES

RS000169A