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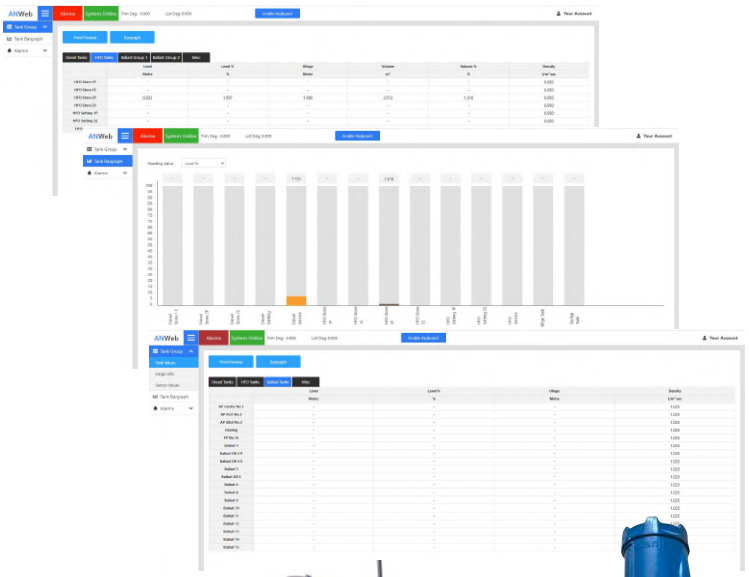
VPM Marine Tank Gauging Systems

Scalable solutions for any Vessel



Key features

- A complete stand-alone tank and draught monitoring solution with data output to other systems
- Scalable for all vessel sizes and types
- Purpose developed central processing unit with embedded firmware and no reliance on commercial operating systems
- Solid state memory with 100% back up
- No limit to type or number of input points
- Serial multi-drop interconnection of system components reduces cabling requirements
- Multiple displays locations & types
- Screen presentation customisable for each system

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PSM is a Scanjet Group Company

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VPM – Scalable Tank Monitoring Systems

At the centre of each system is PSM's VPM processing module. This powerful, in-house developed unit, with embedded firmware does not rely upon a Windows Operating System and is engineered for maximum performance and reliability.

All firmware and configuration data are stored on easily exchangeable solid-state memory with 100% redundancy. This enables simple changes or upgrades by substitution or uploading of setups prepared remotely via the integral USB connections.

The central module handles all signal acquisition and data processing and generates the display of real-time tank content and alarm status. Depending on the requirements of a particular application the system is packaged to suit.

VPM4300 (DTGS)

For smaller vessels with fewer tanks the VPM is packaged as a self-contained unit with an integral 7" touchscreen (VPM4300) with the displayed data formatted to suit the screen size. The VPM4300 communicates directly with PSM APT1000 intelligent tank level transmitters via a single multi-drop RS485 network. This connection arrangement reduces significantly on cabling required and installation time and is ideal for both newbuild and retrofit applications. This package is known as our Digital Tank Gauging System (DTGS) and is completely self-contained, the VPM display includes software tools to setup and calibrate the APT1000 transmitters, for simple commissioning and maintenance.

Where display is needed at more than one location, multiple VPM4300 units can be interconnected via a dedicated ethernet link. Each VM4300 may have its own network of directly connected APT1000 transmitters or may just be used as a repeater display. All tank data is shared, meaning it may be shown on all or selected VPM 4300 units depending on user requirements.

The VPM4300 can also provide an RS485 output of all tank status data. Output protocol is industry standard Modbus RTU which can be read by other onboard systems such as a loading computer, alarm monitoring system or platform management system.

VPM +

For larger vessels where a more comprehensive/ larger display is required, the same basic architecture is used to directly connect to the APT 1000 transmitters and the VPM 4300 is equipped with additional firmware functionality to support the addition of one or more large remote displays.

These remote displays connect to the VPM 4300 via a dedicated ethernet network, each having a small Remote Hub which interfaces to the ethernet network and provides an HDMI output to the display. The display may either be touchscreen or mouse / trackpad controlled and each remote screen can be set up to display all data or only that which is needed at its location.

Tank content and alarm data is presented in both tabular and graphical formats with grouping and layout as required.

To maximise reliability these Remote Hubs and displays do not require a Windows Operating System, although it is also possible to additionally connect to any other display system which has an ethernet port and the ability to open a web browser.

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VPM System (VPMS)

Both the DTGS and VPM + solutions are based upon the use of PSM's intelligent APT1000 transmitters. For vessels where multiple input types are to be monitored the VPMS system is employed.

The VPMS features an enhanced and repackaged central processing unit with additional input and output capability. Five RS485 input ports allow serial connection of a range of input modules.

- A 12 Channel input Module supporting HART protocol – this is used for connection of the PSM SC R8 80Ghz Radar level transmitter.
- A 12 Channel 4-20mA input Module
- An input module which features 8 RS485 ports each of which allows connection of a signal converter module which can accept up to 14 PT1000 temperature sensors.

Multiple input modules (up to 16) can be connected to each of the 5 RS485 input ports on the central processing unit meaning that the number of inputs is unlimited for practical purposes.

All input modules also integrate safety barriers into their design permitting direct connection of Hazardous Area instruments. Further, the temperature signal converter module is certified for location in a Zone 1 area.

The enhanced central processing unit also includes 9 onboard changeover relays which can be configured to provide contact outputs for high or low tank states (either common to all tanks or for discrete tanks) or other system errors such as power failure, communications loss, etc.

Packaging of a VPMS system is flexible and arranged to suit each application. The input modules may be packaged within the same enclosure as the central processing unit, or they may be remotely mounted and connected via the RS 485 link, depending on which solution is best.

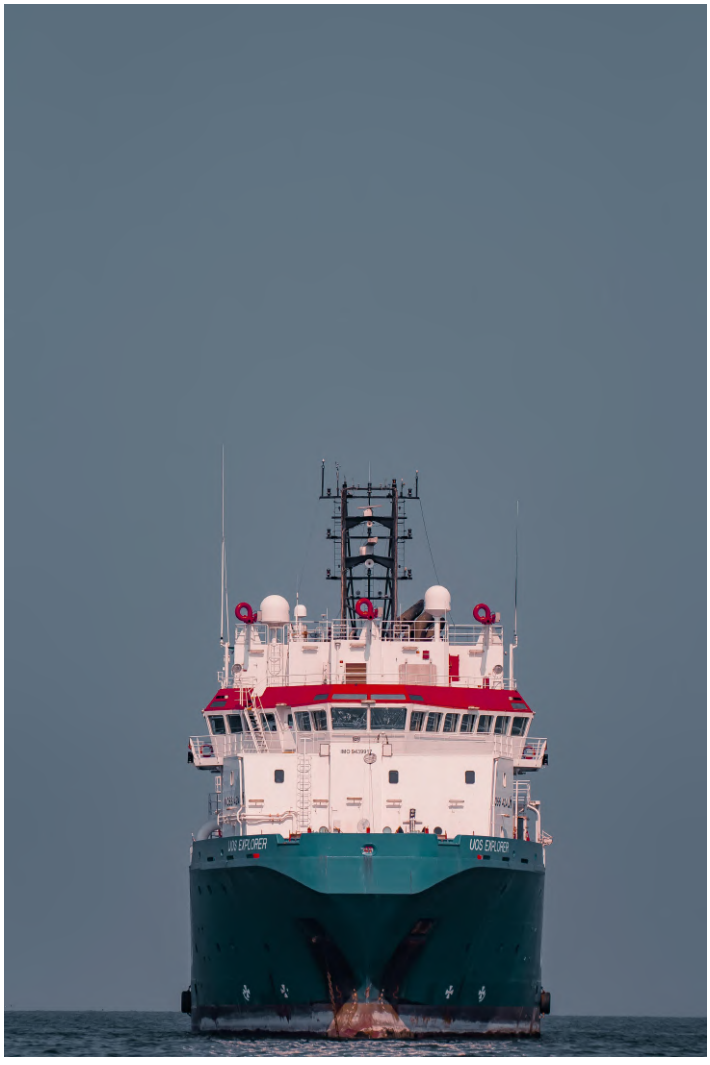
The VPMS can also use Remote Hubs to provide distributed displays, but again it is also possible to use any remote display capable of connecting to ethernet and running a web browser pointed to the IP address of the VPMS central processing unit.

The VPMS central processing unit has two available ethernet ports. One is used for the local intranet connecting the onboard displays to the system, and the second may be used for VPM Online.

VPM Online

Where a system is set up to allow it, VPM Online will enable remote access via the internet. This allows current configuration and status to be uploaded, worked on remotely, and new configuration settings downloaded.

This functionality greatly simplifies and reduces the cost of in-service support.



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VPMS Typical Schematic