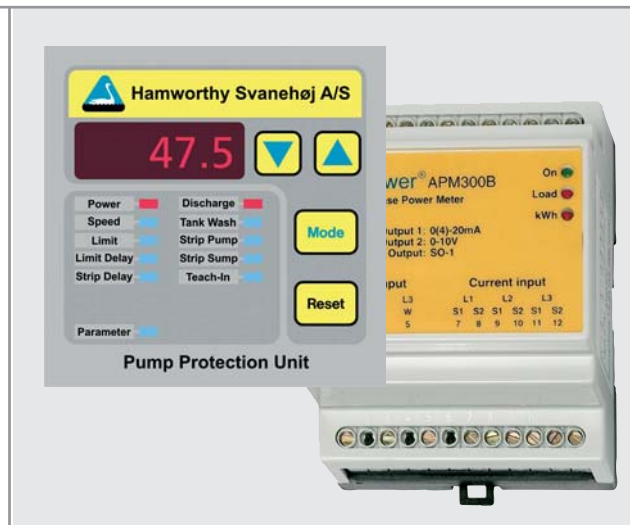


Pump Protection Unit

for Hamworthy Svanehøj deepwell pumps



The Pump Protection Unit (PPU) is designed for protection of Hamworthy Svanehøj's deepwell pumps against dry running.

The PPU measures and displays the power consumption of the pump and is available for all Hamworthy Svanehøj pump types - with or without frequency converter.

The unit operates with a lower kW limit for each of the operating functions of the pump.

- First kW limit is used for Discharge and Stripping functions.
- Second kW limit is used for Tank Washing function.

If the power consumption of the pump is below the limiting value for a certain time, the pump is stopped.

The PPU is physically divided in 2 parts:

A **power meter**.

A **display** instrument.

The **power meter** is for DIN rail mounting and is installed in the motor starter cabinet.

The **display** should be installed in a remote control panel close to the operator, facilitating switch between the various operating functions and ensuring optimal kW monitoring during operation.

FUNCTION

Pump Protection Unit provides dry running protection, even if pumping at varying speed and the liquids have varying specific gravity and viscosity.

Discharge Function

In order to find the kW limit for the individual liquids it is necessary to measure the power consumption of the pump against closed valve. For finding the kW limiting value please see *Teach-In function*.

The PPU adjusts currently the kW limiting value to the actual speed of the pump, thus protecting the pump against dry running at all speeds.

When the tank is empty, the power consumption of the pump will drop below the kW limit, and the pump is stopped automatically by the PPU.

Tank Wash Function

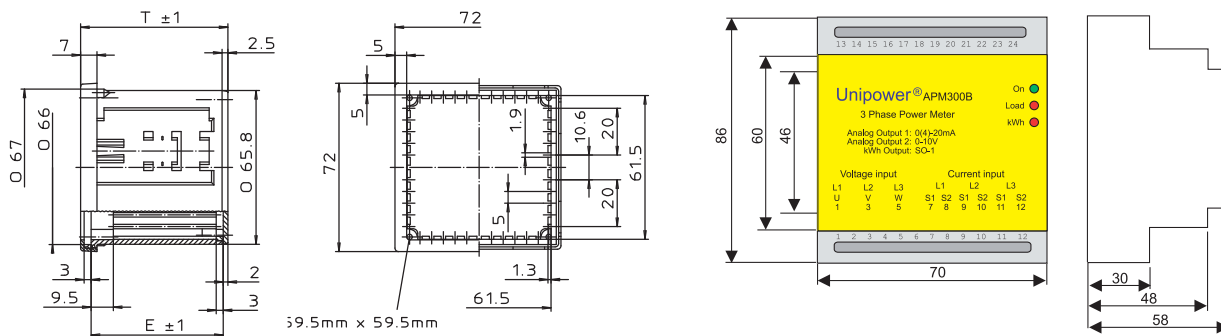
Tank wash is critical for the pump due to pumping with a very little flow for a considerable period.

In order to have wash water in the pump all the time it is necessary to pump against almost closed valve. Experience shows the problem of having the discharge valve of the pump so little open.

Accordingly we recommend making a 1" by-pass with orifice above the valve facilitating tank wash with closed valve and only flow through the established by-pass.

Optimal tank wash conditions are when valve or orifice closes so much that there is a constant stable water flow through the pump. The pump empties constantly the tank so much that it sucks a little air at the same time.

In case of frequency converter operation the pump is set at a suitable speed so that the pump empties the tank of wash water in relation to supply of wash water.



All dimensions in mm

Strip Pump - only at DL and CKL Pump

When the PPU is in Strip Pump function, there will be double security: Partly a kW limiting value, which is already fixed on the basis of the Teach-In performed in the Discharge function, partly a timer for allowable operating time in Strip Pump function.

Strip Pump - only at DW Pump

The foot valve of the DW pump has a super stripping device making it possible to empty the sump completely when increasing the stop time of the pump. This is done by activating the Strip Sump function during operation.

Auto Teach-In Function (recommended)

Before unloading a cargo, the PPU will automatically find the kW limit for the cargo.

This is done in the following way:

1. PPU is in Discharge function.
2. Start the pump against closed valve.
3. Teach-In LED will be flashing while the kW limit is adjusted.
4. When Teach-In LED stops flashing, the kW limit has been found.
5. The kW limit appears under *Limit*.

Manual Teach-In Function

Before unloading a cargo differing in specific gravity or viscosity from last cargo, the kW limit should be adjusted to the new cargo.

This is done in the following way:

1. PPU is in Discharge function.
2. Activate the Teach-In function
3. Start the pump against closed valve.
4. When the power consumption of the pump is stable, press *RESET*.
5. The PPU calculates limiting values and jumps out of the Teach-In function.
5. The new kW limit appears under *Limit*.

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