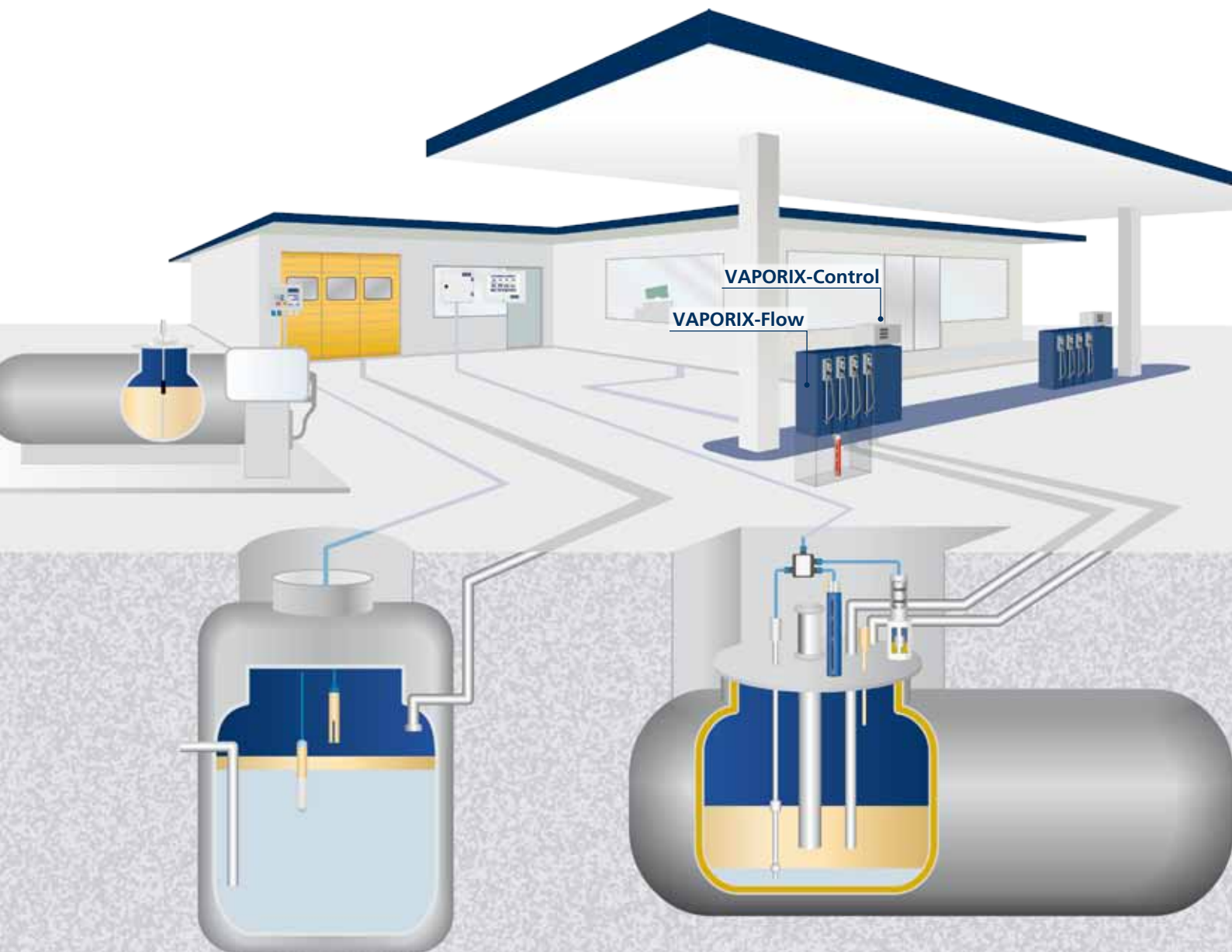




# VAPORIX

The Automatic Monitoring System  
for active Vapour Recovery



## FAFNIR – Quality and Satisfaction

### Company:

FAFNIR GmbH, based in Hamburg, Germany, has over 45 years of experience in the development and production of filling safety devices, overfill prevention solutions, limit signal controllers and continuous level gauging solutions for all types of liquid.

The optimisation of process controls, improvements in cost efficiency and the protection of people and the environment are at the heart of our business.

Our close and trusting relationship with our customers is a key factor in the practice-oriented implementation of innovative ideas and the functionality of our products.



### Quality for your satisfaction:

To provide all customers with products of consistently high quality, FAFNIR has for many years operated an internationally recognised, comprehensive quality management system that meets the requirements of ISO 9001:2008 (EN 29001). Our expertise in the development and manufacture of explosion-proof equipment is certified by an independent body. All our products are subject to strict FAFNIR quality requirements. We are committed to meeting international standards and applicable EU directives.



# VAPORIX

The Automatic Monitoring System for active Vapour Recovery



VAPORIX-Flow,  
-Control and -Master

## Product information

The automatic monitoring system VAPORIX supplies information on the functional state of the active vapour recovery and thus fulfils the requirements of the 21.BImSchV (German-directive). As an automa-

tic monitoring system for the active vapour recovery VAPORIX serves as protection for people and environment.

## Application

The automatic monitoring system VAPORIX is especially designed for the application in gas stations. Due to its modular structure VAPORIX can be applied in all known active vapour recovery systems and dispensers.

## Features of FAFNIR technology

- Fulfils all requirements of 21.BImSchV (German-directive)
- Independent of the type of vapour recovery system
- Retrofitting in all common dispensers possible
- No mechanically moving parts
- Independent of media
- Maintenance-free since self-checking
- Connection to all cash systems possible\*
- Easy start-up and retrofitting
- ATEX certification for zone 0
- TÜV certified

\* only in combination with suitable cash systems

### Function

The flow sensor VAPORIX-Flow is based on the calorimetric measuring principle. The medium which flows past a heated sensor element absorbs the

energy and thus cools it. The volume flow can be concluded from the absorbed heat energy. The incoming media parameters (HC and air) are adjusted by the

simultaneous coverage of the HC concentration, i.e. the measured volume flow is captured independently of the media.

### System Design

Flow Sensor	Conversion	Display
<b>VAPORIX-Flow</b> Calorimetric flow sensor	<b>VAPORIX-Control</b> Conversion for 2 VAPORIX-Flow	<b>VAPORIX-Master</b> Display for cash area

### Installation Instructions

VAPORIX-Flow is installed in the vapour recovery pipe before the pump and before any existing control valve and/or condensate separator. VAPORIX-Flow has to be professionally fixed in the dispenser with clamps and in the flow direction in a perpendicular position. Its 8-wire cable (4 m long, standard) is firmly connec-

ted to the transducer and must not be shortened. It has to be guided into the dispenser head through suitable cable screwings and to be connected to the conversion system mounted inside the head.

The conversion system VAPORIX-Control has to be mounted

outside the Ex-zone in the head of the dispenser. It contains the supply for two transducers of the type VAPORIX-Flow and the conversion system conformed to 21. BImSchV (German-directive). As reference inputs the relevant pulse outputs of the dispenser computer have to be connected to the VAPORIX-Control.

**Technical Data**  
**Transducer**  
**VAPORIX-Flow:**

**Operating Data**

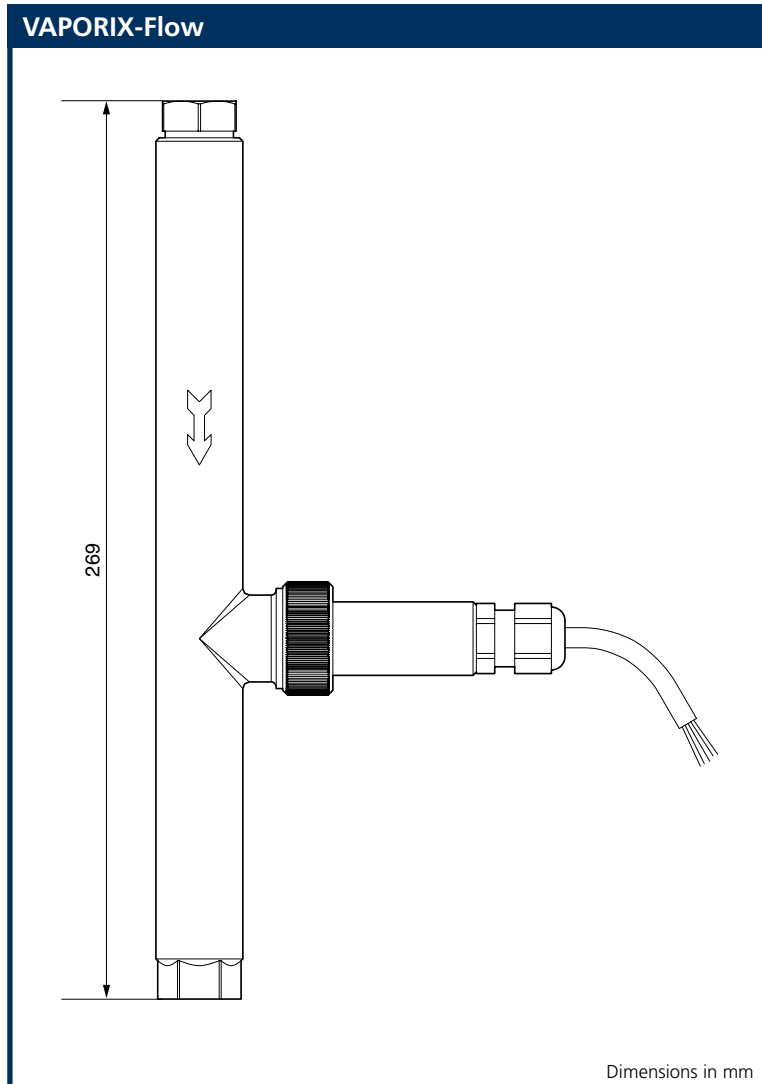
- » Explosion Protection:  
 $\text{Ex II 1 G Ex ia IIB T3 Ga}$
- » Certification:  
 TÜV 99 ATEX 1509
- » Protection class: IP68
- » Approved Ambient  
 Temperature:  
 - 40 °C to + 65 °C

**Connections**

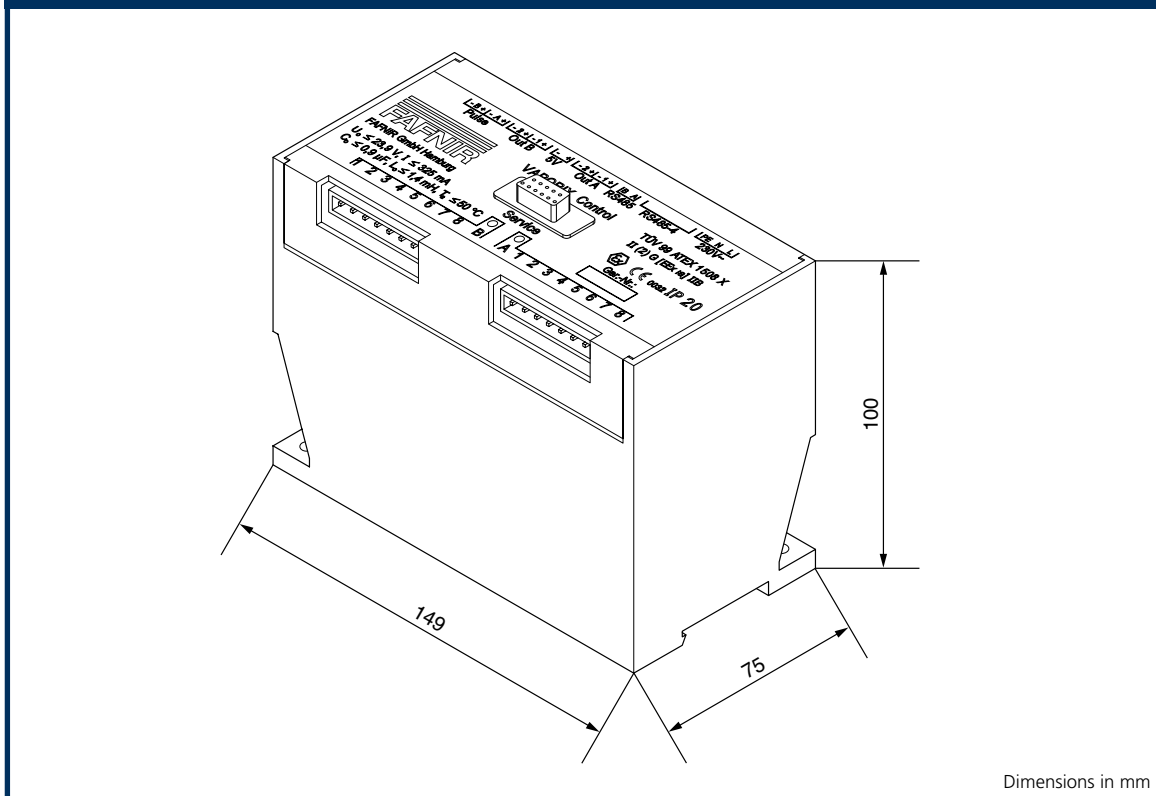
- » Connection to the  
 VAPORIX-Control
- » Supply Thread: G 3/8"

**Dimensions**

- » Installation Length: 269 mm



## VAPORIX-Control



### Technical Data Conversion System VAPORIX-Control:

#### Operating Data

- » Explosion Protection:  
⊕ II (1) G [Ex ia Ga] IIB
- » Certification:  
TÜV 99 ATEX 1508 X
- » Protection class: IP20
- » Approved Ambient Temperature:  
- 20 °C to + 65 °C
- » Auxiliary power:  
230 V alternating voltage,  
appr. 20 W;  
Optional:  
115 V alternating voltage
- » Safe max. Voltage:  $U_m = 253 \text{ V}$

#### Connections

- » Auxiliary power: 230 V ~ ...
- » Pulse input: rectangular signal with 5...24 V pulse height, max. 1 kHz, duty factor 20...80 %
- » Pulse Valence: 100 pulse/litre standard presetting;  
Optional:  
33/50/132/200 pulse/litre standard presetting
- » Outputs: 2x galvanic separated transistor outputs max. 30 V, 100 mA

- » Interface: Service 1 x RS-232;  
Dispenser computer  
1 x RS-485 4-wire;  
VAPORIX-Master  
1 x RS-485 2-wire

### VAPORIX – Order code

Designation	Description	Order code
VAPORIX-Flow		908247
VAPORIX-Control (Basis)	(Please specify country code, for example: 0049 for Germany)	908360
VAPORIX-Service Dongle		908249
VAPORIX-Master	Desktop Display incl. plug-in power supply Plug standard: Europe (without U.K.)	On request
VAPORIX-Master	Desktop Display incl. plug-in power supply U.K.	On request

# Condensate Separator

The Condensate Separator  
for Vapour Recovery Systems



## Product information

The condensate separator is designed for fuel dispensers to be retrofitted with a decentralized active-vapour-recovery-system. The condensate separator collects large quantities of condensate and converts it back into a gaseous state. It has been developed to fulfil the requirements of vapour recovery systems at gas stations. The application of the condensate separator will

prolong the operational life of pumps and improve the smooth running of the equipment. A condensate separator should be a part of every vapour recovery system.

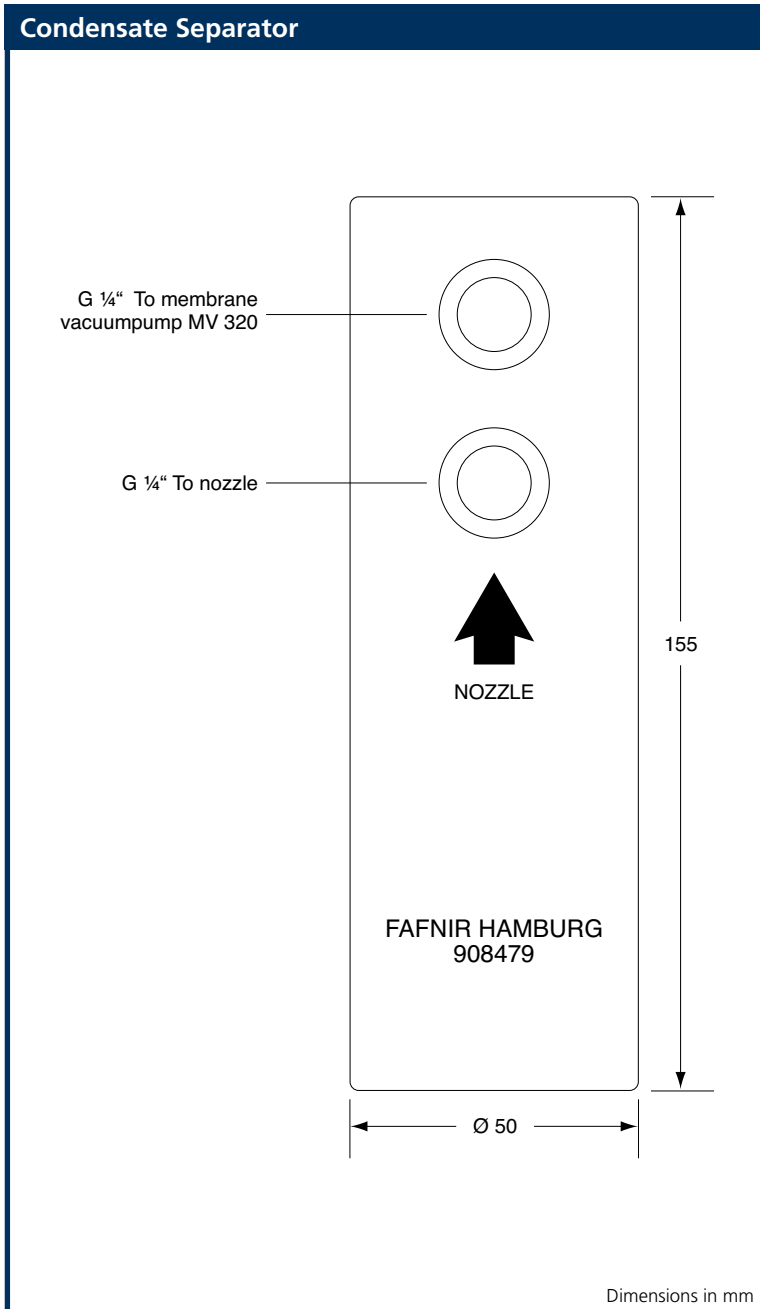
## Technical Description

Condensate and liquid residue transported by the vapour recovery flow are collected in the condensate separator. They are collected on the bottom. From here they are converted back into a gaseous state by the volume flow in the system. The optimal vapour flow within the condensate separator leads to a quick dissolution of the condensed residue.

## Features of FAFNIR technology

- Ideal for retrofitting existing equipment
- Robust construction
- Maintenance-free
- Easy installation
- Cost effective
- Maximum protection of the vapour recovery pumps
- Improves the smooth running of vapour recovery pumps





**Installation Instructions:**

The condensate separator is integrated into the vapour recovery system between the nozzle and the vapour recovery pump. In order to guarantee a smooth operation the following installation instructions should be complied with:

- » The position of the condensate separator must always be vertical, i.e. in an upright position (see drawing).
- » The supply connections must not be interchanged.
- » For mounting the condensate separator standard pipe clamps can be used, if necessary.
- » After installation the equipment has to be newly calibrated.

**Maintenance Instructions**

If the condensate separator is used according to its intended purpose, it is generally maintenance-free.

**Technical Data**

- » Connections:  
G 1/4" inner thread

**Material**

- » completely made from stainless steel 304, wall thickness 1 mm, welded gas-tight

**Measurements**

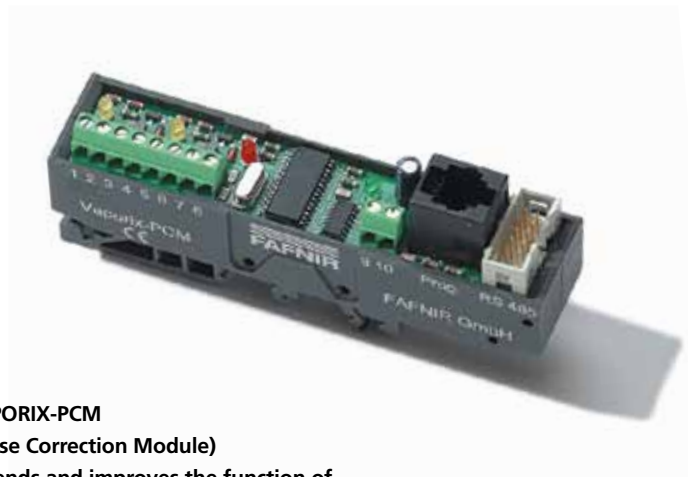
- » H 155 x Ø 50

**Condensate Separator – Order code**

Designation	Order code
Condensate Separator for Vapour Recovery Systems	908479

# VAPORIX-PCM

The pulse correction module for vapour recovery systems



**VAPORIX-PCM**  
(Pulse Correction Module)  
extends and improves the function of pulse controlled vapour recovery systems.

## Produktinformation

VAPORIX-PCM is a control module for pulse controlled vapour recovery systems which can correct physically caused drift effects of the vapour recovery rate (e.g. through temperature variations or swelling hoses and seals).

## Function

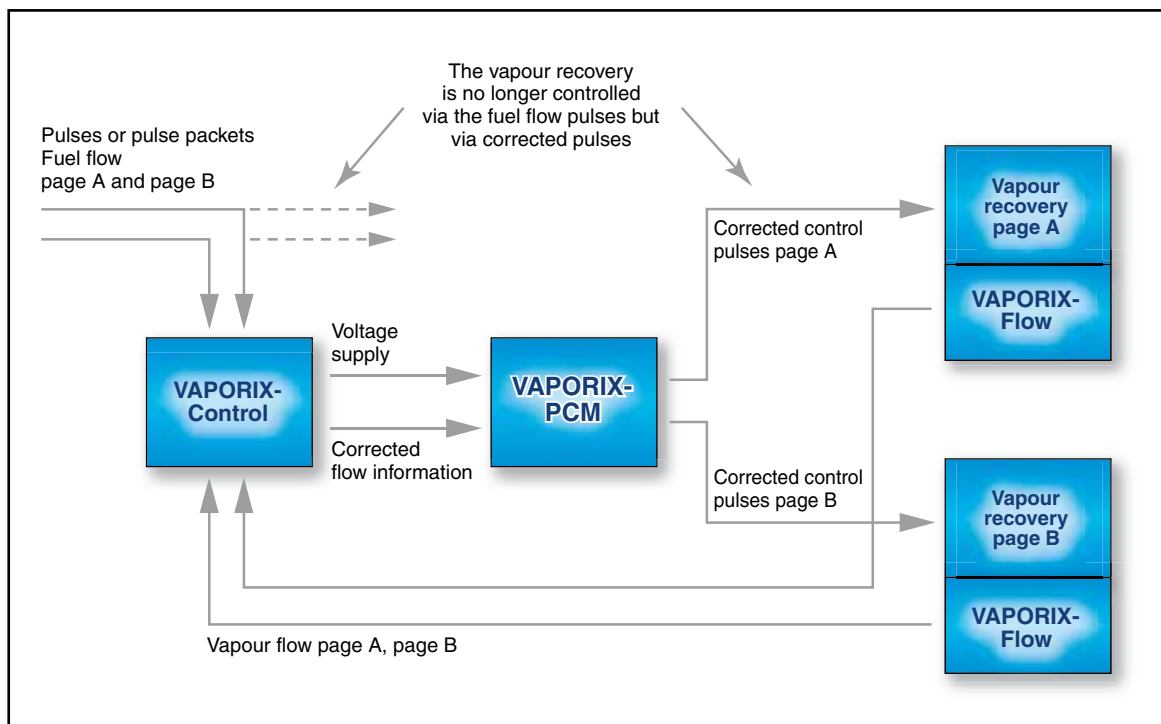
With help of its microcontrolled electronics VAPORIX-PCM reverts to the established history data base inside the VAPORIX-Control. This new history based knowledge enables a highly effective corrective control of the vapour recovery system. All influences that could

affect the vapour recovery are included. The result is an excellent corrective control that exactly diagnoses the failures of the vapour recovery.

## Features of FAFNIR technology

- Makes a difference between physically based fluctuations in the vapour recovery rate and real errors in the vapour recovery system. Therefore a proper execution of necessary maintenance according to 21.BImSchV (German-directive) is possible
- Suitable for new installations as well as for retrofitting
- Independent of all manufacturer specific features
- Easy installation and retrofitting
- Space saving since its very small dimensions

### Process flow



### Technical Data VAPORIX-PCM:

#### Supply

- »  $5 V_{DC} \leq 30 \text{ mA}$  (from VAPORIX-Control), internal pole protection up to  $30 V_{DC}$  screw terminal for max.  $1 \text{ mm}^2$ . Connecting cable to VAPORIX-Control is part of the supply package.

#### Pulse outputs per side

- » 1 x TTL-compatible ( $4.7 \text{ V}/2 \text{ mA}$ ), short-circuit proof
- » 1 x Opto-coupler for generating galvanic separated pulses via external voltage source, collector and emitter open, max. switching voltage  $28 V_{DC}$

- internal pole protection up to  $30 V_{DC}$ .
- » Screw terminal for max.  $1 \text{ mm}^2$ .
- » Display of pulse generation via yellow LED.

#### Pulse frequencies

- »  $2.0 \text{ Hz} \dots 200.00 \text{ Hz}$
- » Corresponds to  $2.4 \text{ l/min}$  (at  $50 \text{ Imp./l}$ ) to  $60.0 \text{ l/min}$  (at  $200 \text{ Imp./l}$ )

#### Serial interface

- » RS485, 4-wire, 10-pole pillar plug-in connection, connecting cable to VAPORIX-Control is part of the supply package

#### Service display

- » LED green

#### Failure display

- » LED red

#### Dimensions in mm

- » L 105 x B 24 x H 47

#### Casing

- » Module carrier for mounting DIN-carrier bars

### VAPORIX-PCM – Order code

Designation	Order code
VAPORIX-PCM	
for corrective control of active vapour recovery	908259

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