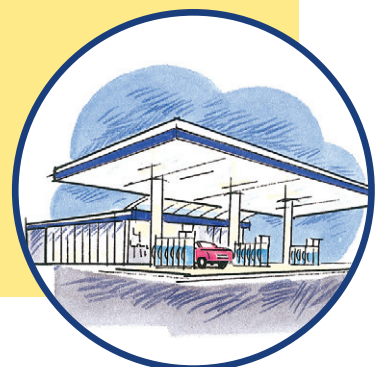


VAPORIX

for active Vapour Recovery

- VAPORIX  3.1
- Condensate Separator  3.2
- VAPORIX-PCM  3.3



VAPORIX

The Automatic Monitoring System for active Vapour Recovery

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 automatic 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.



Advantages of FAFNIR's 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 indepently of the media.

System Design

Flow Sensor	Conversion	Display
VAPORIX-Flow Calorimetric flow sensor	VAPORIX-Control Conversion for 2 VAPORIX-Flow	VAPORIX-Master 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 connected 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. BlmSchV (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:
⊕ II (1) 2 G EEx ia IIB T3
- Certification: TÜV 99 ATEX 1509
- Protection Type: IP 65
- Approved Ambient Temperature:
-30 °C to +50 °C

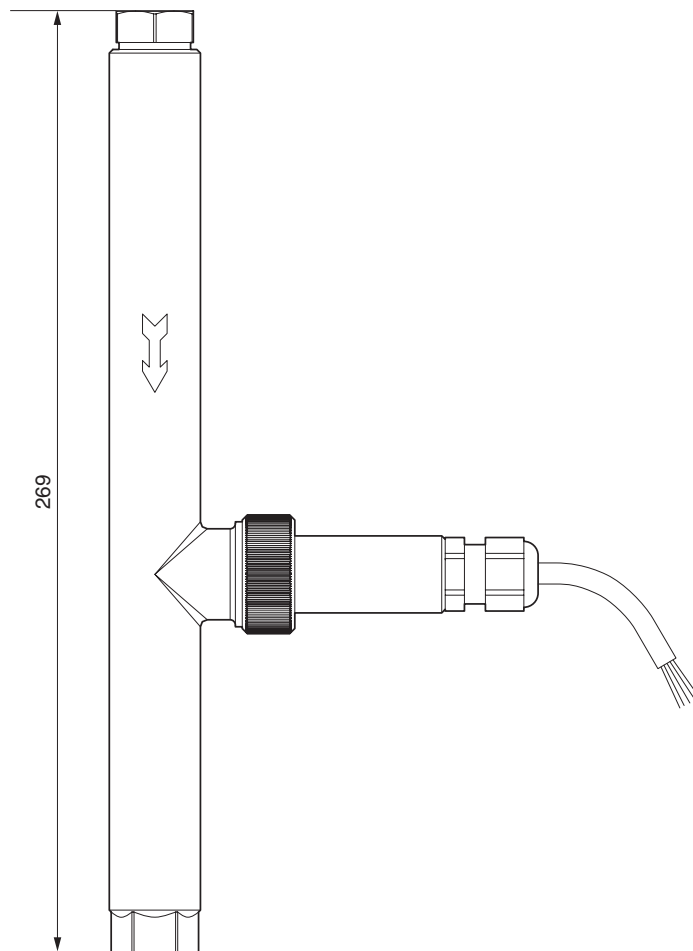
Connections:

- Supply Data:
 $U_m = 23.9 \text{ V}$; $I_m = 0.345 \text{ A}$
- Supply Thread: G $\frac{3}{8}$

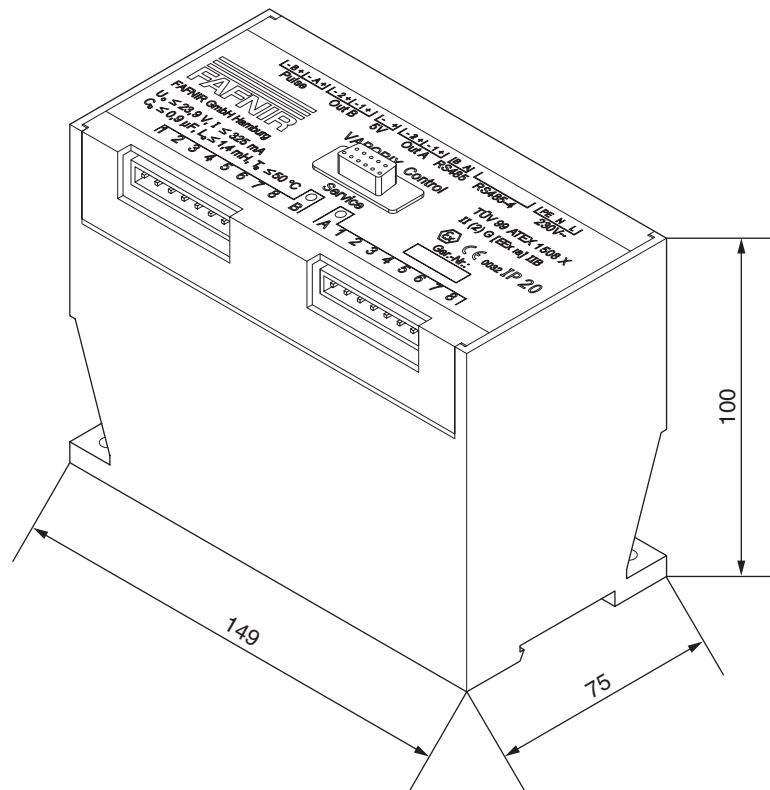
Dimensions:

- Installation Length: 269 mm

VAPORIX-Flow



Dimensions in mm



Dimensions in mm

Conversion System VAPORIX-Control:

Operating Data:

- Explosion Protection:
Ex II (1) G [EEx ia] IIB
- Certification: TÜV 99 ATEX 1508 X
- Housing Protection Type: IP 20
- Approved Ambient Temperature:
-30 °C to +50 °C
- Auxiliary power:
230 V alternating voltage $\pm 10\%$,
appr. 20 W
- Safe max. Voltage: $U_m = 253$ V

Supply Data per

Sensor Circuit:

- in ignition protection type
EEx ia IIB T3
- safe max. values:
 $U_m = 23.9$ V; $I_m = 0.325$ A
- max. approved external inductance:
1.4 mH
- max. approved external capacity:
0.9 μ F

The intrinsically safe sensor circuits are securely galvanic separated from the supply circuit up to a peak value of the nominal voltage of 375 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
- 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

Dimensions in mm:

- H 149 x W 75 x D 100

VAPORIX-Master:

- Plug-in power supply:
5 V/2 A direct current
(in delivery included)
- Load limits floating transistor:
< 36 V / < 200 mA
- Interface: 1 x RS-232; 1 x RS-485

Dimensions in mm:

- H 210 x W 105 x D 110

Purchase Order Codes

Please state the following order number in your purchase order.

VAPORIX MPD-Set

2 pieces VAPORIX-Flow Calorimetric flow sensor

1 piece VAPORIX-Control Measurement analysis for VAPORIX-Flow

Order Number

133100

VAPORIX Single-Set

1 pieces VAPORIX-Flow Calorimetric flow sensor

1 piece VAPORIX-Control Measurement analysis for VAPORIX-Flow

Order Number

133200

VAPORIX-Master

Desktop Display incl. plug-in power supply

Plug standard: Europe (without U.K.) 1

U.K. 2

Order Number

13330

Single Parts

Product	Order Number
VAPORIX-Flow	133010
VAPORIX-Control	133020
VAPORIX-Service dongle	133050

For further information contact us on telephone +49/40/39 82 07-0

Current information under: www.fafnir.com

The Condensate Separator for Vapour Recovery Systems

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.



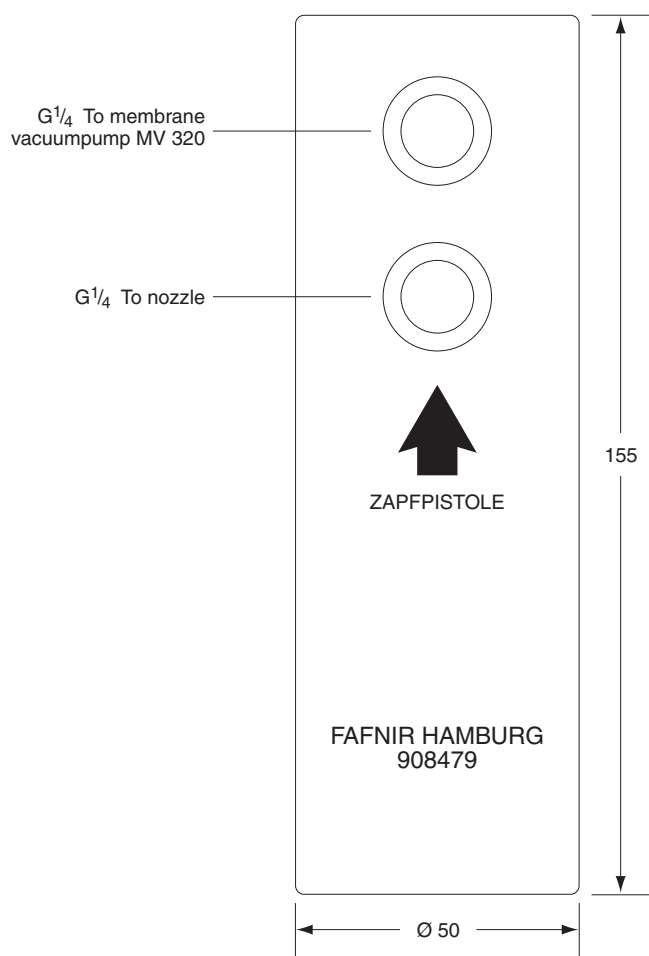
Advantages of FAFNIR's Technology

- 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

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.

Condensate Separator



Dimensions in mm

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 $\frac{1}{4}$ inner thread

Material:

- completely made from stainless steel 1.4301, wall thickness 1 mm, welded gas-tight

Measurements:

- H 155 x $\varnothing 50$

Purchase Order Codes

Please state the following order number in your purchase order.

Condensate Separator

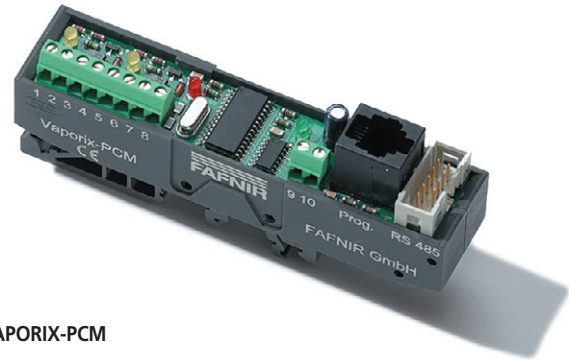
Product	Function	Order Number
Condensate Separator	for Vapour Recovery Systems	908479

For further information contact us on telephone +49/40/39 82 07-0
Current information under: www.fafnir.com

VAPORIX-PCM

The pulse correction module for vapour recovery systems

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).



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

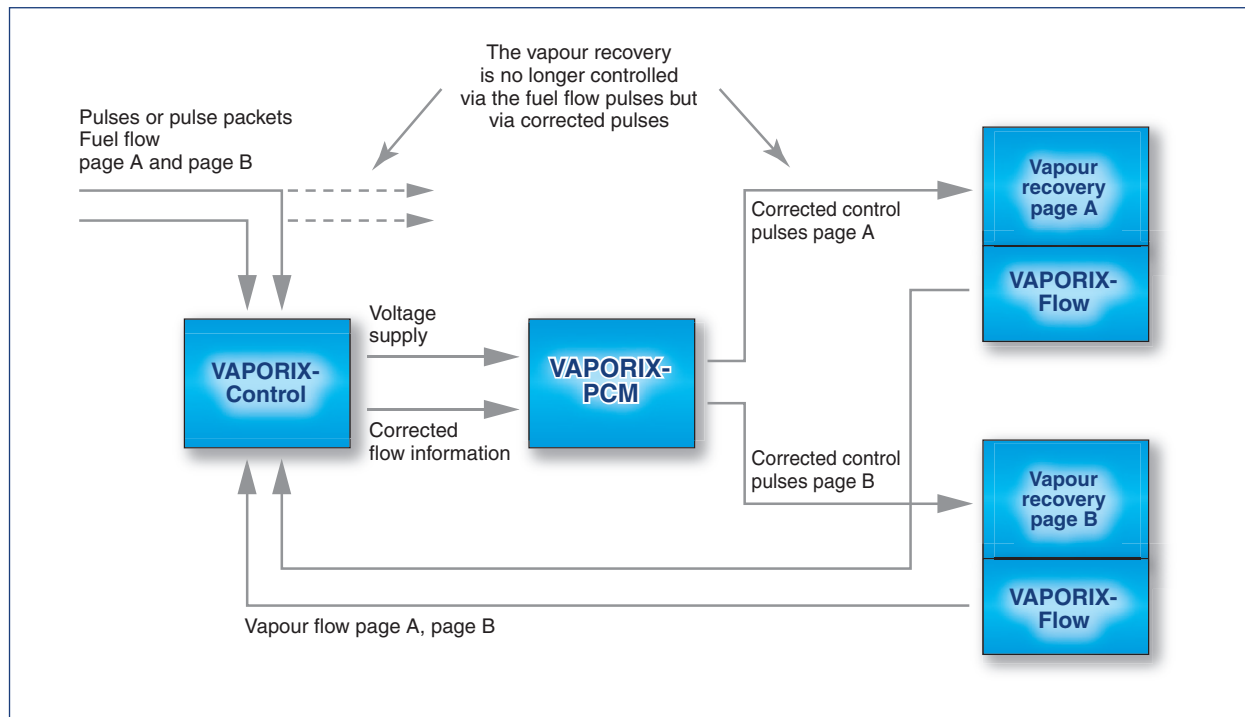
Advantages of FAFNIR's Technology

- 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

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.

Process flow



Technical Data

Supply:

- 5 V DC, ≤ 30 mA (from VAPORIX-Control), internal pole protection up to 30V DC, screw terminal for max. 1 mm². Connecting cable to VAPORIX-Control is part of the supply package.

Pulse outputs per side:

- 1 x TTL-compatible (4,7 V / 2 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 mm².
- Display of pulse generation via yellow LED.

Pulse frequencies:

- 2,0 Hz...200,00 Hz
- Corresponds to 2,4 l/min (at 50 Imp./l) to 60,0 l/min (at 200 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

Purchase Order Codes

Please state the following order number in your purchase order.

VAPORIX-PCM

Product	Function	Order Number
VAPORIX-PCM	for corrective controll of active vapour recovery	908259

For further information contact us on telephone +49/40/39 82 07-0

Current information under: www.fafnir.com