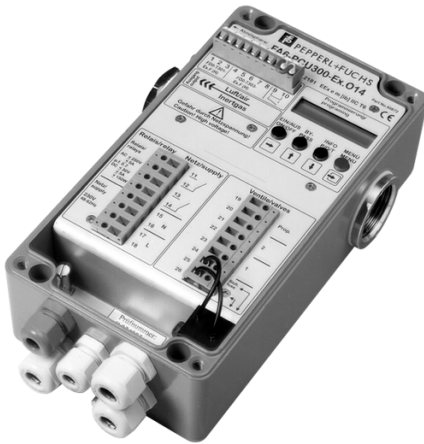


Variants



The EEx p pressurising system is an Ex protection class which allows to use non-Ex-approved devices in Ex-areas up to zone 1 in a cost efficient way.

A pressurising system consists of a control unit with integrated pressure monitor, solenoid valve and a pressurising housing.

System components:

Control unit

with integrated pressure switch, 24 V DC
with integrated pressure switch, 115 V AC
with integrated pressure switch, 230 V AC

FD2-PCU300A-Ex**
FA5-PCU300A-Ex**
FA6-PCU300A-Ex**

Operation panel

front panel mounting
with housing IP65

FD0-T301A-Ex.F
FD0-T301A-Ex.H

Solenoid valve

operating voltage, 24 V DC
operating voltage, 115 V AC
operating voltage, 230 V AC

FU2PV32*-Ex
FA5PV32*-Ex
FA6PV32*-Ex

Back-up fuse

for solenoid valves

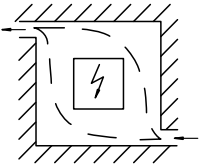
PCU-F-Ex.***MA

Operating instructions

Pressurised enclosure system PCU300A

Overview

Function:



A pressurised enclosure system consists of the components **control unit with integrated pressure monitor, solenoid operated valve** as well as a **housing** which contains the actual apparatus. Air or an inert gas such as nitrogen is fed into the enclosure housing, thus producing a non-explosive atmosphere so that any ignition sources present cannot trigger an explosion. The control unit, in conjunction with the pressure switch, monitors the circulation process and the pressure; when purging is complete, it allows the electrical apparatus to be switched on. If the pressurised enclosure is opened, the pressure is released and the control unit isolates the apparatus mounted in it from the power supply.

Pressurised enclosures can be divided into two types, depending on the application:

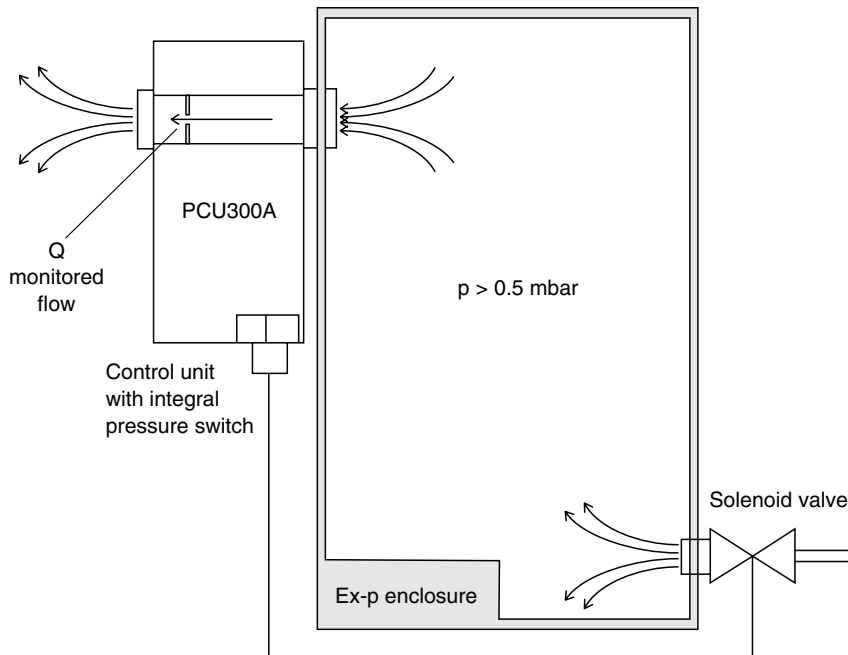
- Leakage compensation
- Constant purging circulation

Leakage compensation: After circulating a defined quantity of inert gas, as specified in EN 50016, the housing is hermetically sealed on the outlet side. Possible leaks are compensated by feeding in inert gas. This ensures minimum consumption of the inert gas.

Constant purging (dilution): After pre-circulation, purging continues with a reduced quantity of air. This method is used with internal gas sources (e. g. analytical devices) in order to achieve a dilution of the gas mixture below the lower explosion ignition limit to achieve a non-explosive concentration. A further effect is the reduction of a possible temperature rise within the housing due to the heat given off by the device.

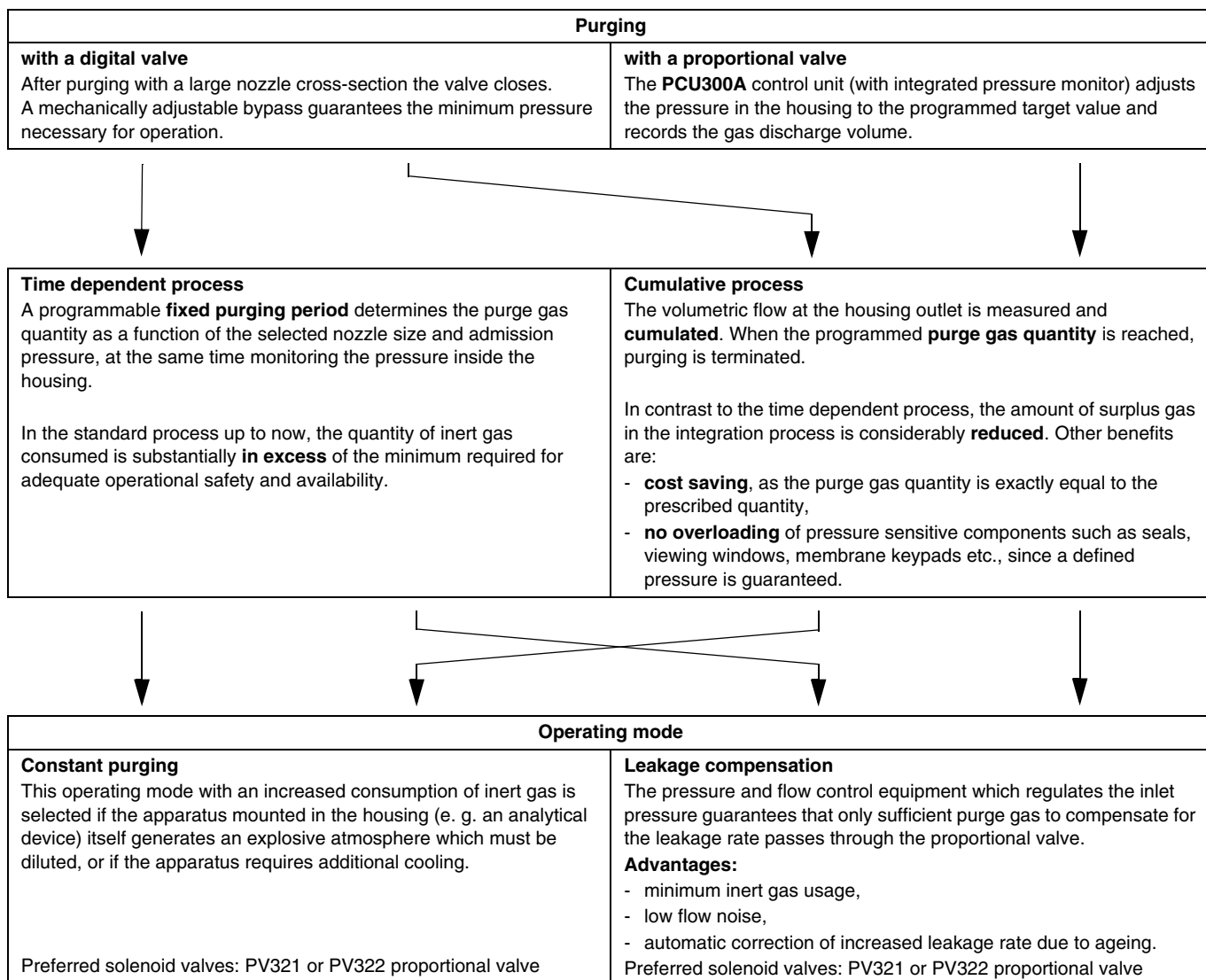
If internal gas sources are present ("Containment System") it is preferable to use nitrogen as the ignition-inhibiting gas.

General design of a pressurised enclosure system:



Selection table

The following types of purging and operation can be achieved with the components supplied by Pepperl+Fuchs:



Choice of control unit orifice meter and solenoid valve nozzle diameter

Digital valve: The purging volume required by EN 50016 and the desired purging period determine the purge gas flow (in litres/hour) at the solenoid valve. In the middle section of the table, below, select a volumetric flow rate corresponding to the available admission pressure, which is greater than the pre-determined value, taking leakage losses from the housing into account. The diameter of the digital valve nozzle and the control unit orifice meter will be found on the same line, in the right and left-hand columns.

Proportional valve: Experience has shown that a control unit with a 14 mm orifice meter covers a broad range of applications (preferred type).

PCU300A orifice meter Ø [mm]	Purge gas volumetric flow [litres/hour] at solenoid valve							Digital valve nozzles Ø [mm]
	1100	1350	1560	1750	1908	2063	2203	
6	1100	1350	1560	1750	1908	2063	2203	1
10	2495	3017	3485	3827	4302	4608	4921	1.5
14	4349	5328	6149	6869	7513	8107	8654	2
18	9634	11772	13532	15070	16448	-	-	3
	1.5	2	2.5	3	3.5	4	4.5	
	Purge gas admission pressure [bar]							

Date of issue 05/09/06 192337