

# Pressurized Control Panels and Accessories

## DATASHEET

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## Features

- 4 voltage free contacts
- 3-line LCD display
- LED status display
- Modular design
- Fail-safe control

## Control unit

## Description

The control unit APEX 2003.001 controls and monitors the purging and operating phase of pressurised enclosures.

Digital or proportional purging gas valves are available as purging gas inlet.

The parameters are adjusted using rotary switches and buttons. Optionally the parameters can be transferred using an RS485 interface.

The control unit has two programmable relays and a non-isolated enabling contact.

## Explosion protection

### Ex protection type

**ATEX** II 2(1)G Ex e d [ia Ga px] IIC T4/T6 Gb  
 II 2(1)G Ex e d [ia Ga px] IIC T6 Gb

### Certification

DMT 99 ATEX E 082

**IECEx** Ex e d ib [ia Ga px] IIC T4/T6 Gb

Ex e d [ia Ga px] IIC T6 Gb

### Certification

IECEx BVS 13.0039

Further approvals and test certificates can be found at [www.bartec.de](http://www.bartec.de)

### Ambient temperature

-20 °C to +40 °C

## Technical data

### Guidelines/norms/certifications

Directive 2004/108/EC  
Directive 94/9/EC

### Construction

Ex e protective enclosure

### Enclosure material

glass-fibre reinforced polyester

### Protection class

IP 65

### Terminals

2.5 mm<sup>2</sup>, fine stranded

### Purging time

0 to 99 min; 5 sec. dropout delay

### Weight

3.8 kg

### Electrical data

#### Supply voltage

AC 230 V (AC 115 V) ±10%  
DC 24 V ±10%

#### Power consumption

P<sub>v</sub> = 8 W/230 V

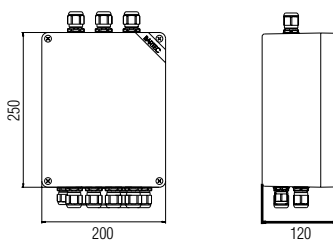
#### Make contact

K 2/3, 5 A for cos φ = 1  
K 4 and K 5, voltage free

#### Temperature switching value (optional)

0 °C to +80 °C

## Dimensions





## Control unit

### Features

- 4 voltage free contacts
- 3-line LCD display
- LED status display
- Modular design
- Fail-safe control

### Technical data

#### Guidelines/norms/certifications

Directive 2004/108/EC  
Directive 94/9/EC

#### Construction

Ex e protective enclosure  
with viewport lid

#### Enclosure material

glass-fibre reinforced polyester

#### Protection class

IP 65

#### Terminals

2.5 mm<sup>2</sup>, fine stranded

#### Pressure sensors

MIN A/B = 0 to 25 mbar  
MAX = 0 to 25 mbar  
DIFF A/B = 0 to 25 mbar

#### Purging time

0 to 99 min; 5 sec. dropout delay

#### Weight

4.3 kg

#### Safety Level

SIL 2

### Electrical data

#### Supply voltage

AC 230 V (AC 115 V)  $\pm 10\%$   
DC 24 V  $\pm 10\%$

#### Power consumption

$P_v = 15 \text{ W/230 V}$

#### Make contact

K 2/3, 5 A for  $\cos \varphi = 1$   
K 4 and K 5, voltage free

#### Temperature switching value (optional)

0 °C to +80 °C

#### Bypass key switch (optional)

### Description

The APEX 2003.00 control unit controls and monitors the purging and operating phases in pressurised enclosures.

Digital or proportional purging gas valves are available to allow the purging gas to enter.

The parameters are set by means of rotary switches and buttons. There is also the option of transferring the parameters through an RS485 interface.

The control unit has two programmable relays and a non-floating enabling contact.

### Explosion protection

#### Ex protection type

ATEX II 2(1)G Ex e d ib [ia Ga px] IIC T4/T6 Gb  
 II 2(1)G Ex e d [ia Ga px] IIC T6 Gb

#### Certification

DMT 99 ATEX E 082

#### IECEx Ex e d ib [ia Ga px] IIC T4/T6 Gb

Ex e d [ia Ga px] IIC T6 Gb

#### Certification

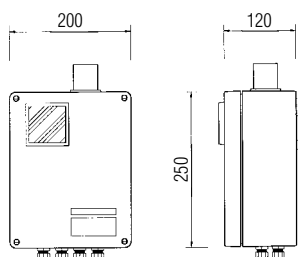
IECEx BVS 13.0039

See [www.bartec-group.com](http://www.bartec-group.com) for more approvals and certification.

#### Ambient temperature

-20 °C to +40 °C

### Dimensions/mounting positions





Control unit

## Description

The APEX 2003.002x control unit controls and monitors the purging and operating phases in pressurised enclosures.

Digital or proportional purging gas valves are available to allow the purging gas to enter.

The parameters are set by means of rotary switches and buttons. There is also the option of transferring the parameters through an RS485 interface.

The control unit has two programmable relays and a non-floating enabling contact.

## Features

- 4 voltage free contacts
- 3-line LCD display
- LED status display
- Modular design
- Fail-safe control

## Explosion protection

### Ex protection type

**ATEX** II 2(1)G Ex e d ib [ia Ga px] IIC T4/T6 Gb  
 II 2(1)G Ex e d [ia Ga px] IIC T6 Gb

### Certification

DMT 99 ATEX E 082

**IECEx** Ex e d ib [ia Ga px] IIC T4/T6 Gb

Ex e d [ia Ga px] IIC T6 Gb

### Certification

IECEx BVS 13.0039

### Further approvals

RTN, GOST

See [www.bartec-group.com](http://www.bartec-group.com) for more approvals and certification.

### Ambient temperature

-20 °C to +40 °C

## Technical data

### Guidelines/norms/certifications

Directive 2004/108/EC  
Directive 94/9/EC

### Construction

Ex e protective enclosure  
with viewport lid

### Enclosure material

glass-fibre reinforced polyester

### Protection class

IP 65

### Terminals

2.5 mm<sup>2</sup>, fine stranded

### Pressure sensors

MIN A/B = 0 to 25 mbar  
MAX = 0 to 25 mbar  
DIFF A/B = 0 to 25 mbar

### Purging time

0 to 99 min; 5 sec. dropout delay

### Weight

7.5 kg

### Safety Level

SIL 2

## Electrical data

### Supply voltage

AC 230 V (AC 115 V) ±10%  
DC 24 V ±10 %

### Power consumption

P<sub>v</sub> = 15 W/230 V

### Make contact

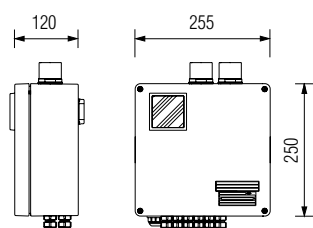
K 2/3, 5 A for cos φ = 1  
K 4 and K 5, voltage free

### Temperature switching value (optional)

0 °C to +80 °C

### Bypass key switch (optional)

## Dimensions/mounting positions





## Control unit

### Features

- 4 voltage free contacts
- 3-line LCD display
- LED status display
- Modular design
- Fail-safe control
- Integrated valve switch

### Description

The APEX 2003.MV control unit controls and monitors the purging and operating phases in small separate pressurised enclosures with a maximum internal volume of 70 litres.

The parameters are set by means of rotary switches and buttons. There is also the option of transferring the parameters through an RS 485 interface.

The control unit features two programmable relays and a non-floating enabling contact.

### Explosion protection

#### Ex protection type

ATEX  $\text{Ex II 2(1)G Ex e d ib [ia Ga px] IIC T4 Gb}$

#### Certification

DMT 99 ATEX E 082

See [www.bartec-group.com](http://www.bartec-group.com) for more approvals and certification.

#### Ambient temperature

-20 °C to +40 °C

### Technical data

#### Guidelines/norms/certifications

Directive 2004/108/EC  
Directive 94/9/EC

#### Construction

Ex e protective enclosure  
with viewport lid

#### Enclosure material

glass-fibre reinforced polyester

#### Protection class

IP 65

#### Terminals

2.5 mm<sup>2</sup>, fine stranded

#### Purge gas connection

Ø 10 mm

#### Pressure sensors

MIN A/B = 0 to 25 mbar  
MAX = 0 to 25 mbar  
DIFF A/B = 0 to 25 mbar

#### Purging time

0 to 99 min; 5 sec. dropout delay

#### Weight

5.9 kg

#### Safety Level

SIL 2

### Electrical data

#### Supply voltage

AC 230 V (AC 115 V)  $\pm 10\%$

#### Power consumption

$P_v = 15 \text{ W/230 V}$

#### Make contact

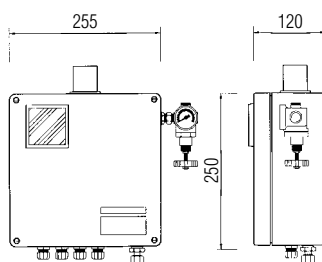
K 2/3, 5 A for  $\cos \varphi = 1$   
K 4 and K 5; voltage free

#### Temperature switching value (optional)

0 °C to +80 °C

#### Bypass key switch (optional)

### Dimensions/mounting positions





## Control unit

### Features

- 4 voltage free contacts
- 3-line LCD display
- LED status display
- Modular design
- Fail-safe control
- Integrated valve switches for purging gas input and output
- Connection possibility of separate pressure sensors

### Description

The APEX 2003.SI control unit controls and monitors the purging and operating phases in Ex p protected analysis systems with integrated containment.

#### Additional function

By connecting additional pressure sensors, the pressure inside the enclosure is regulated by means of a proportional valve to a higher level than that of the measuring gas.

The flow of purge gas during the purging phase is at most 4100 standard litres / h while the pressure inside the enclosure is 50 mbar.

The control unit features two freely programmable relays and one non-floating enabling contact.

### Explosion protection

#### Ex protection type

ATEX II 2(1)G Ex e d ib [ia Ga px] IIC T4 Gb

#### Certification

DMT 99 ATEX E 082

See [www.bartec-group.com](http://www.bartec-group.com) for more approvals and certification.

#### Ambient temperature

-20 °C to +40 °C

### Technical data

#### Guidelines/norms/certifications

Directive 2004/108/EC  
Directive 94/9/EC

#### Construction

Ex e protective enclosure  
with viewport lid

#### Enclosure material

glass-fiber reinforced, polyester

#### Protection class

IP 65

#### Terminals

2.5 mm<sup>2</sup>, fine stranded

#### Purge gas connection

Ø 10 mm

#### Pressure time

MIN A/B = 0 to 300 mbar  
MAX = 0 to 300 mbar  
DIFF A/B = 0 to 25 mbar

#### Purging time

0 bis 99 min; 5 sec. dropout delay

#### Weight

11 kg

#### Safety Level

SIL 2

#### Electrical data

##### Supply voltage

AC 230 (AC 115 V) ±10 %

##### Power consumption

P<sub>v</sub> = 21 W/230 V

##### Make contact

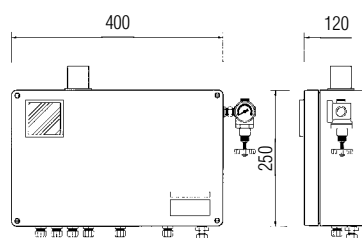
K 2/3, 5 A for cos φ = 1  
K 4 and K 5, voltage free

##### Temperature switching value (optional)

0 °C to +80 °C

##### Bypass key switch (optional)

### Dimensions/mounting positions



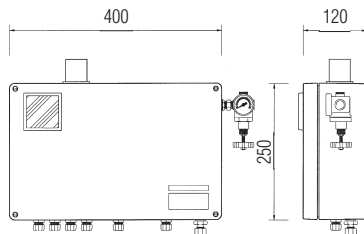


## Control unit

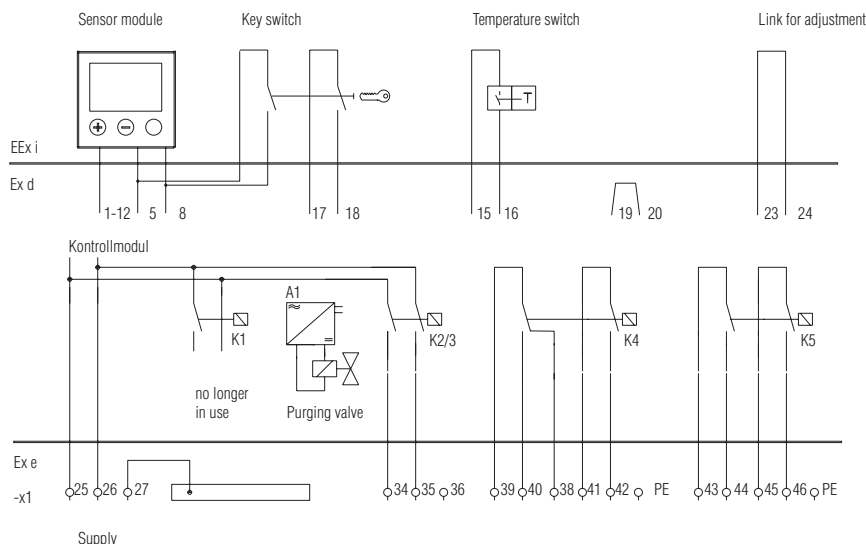
### Features

- 4 voltage free contacts
- 3-line LCD display
- LED status display
- Modular design
- Fail-safe control
- Integrated valve switches for purging gas input and output
- 10 mm purging gas connection
- Connection possibility of separate pressure sensors

### Dimensions/mounting positions



### Wiring diagram/terminal assignment



### Explosion protection

#### Ex protection type

Ex II 2(1)G Ex e d ib [ia Ga px] IIC T4

#### Certification

DMT 99 ATEX E082  
INMETRO 2004 EC02 CP042

#### Ambient temperature

-20 °C to +40 °C

### Technical data

#### Guidelines/norms/certifications

Directive 2004/108/EC  
Directive 94/9/EC

#### Construction

Ex e protective enclosure  
with viewport lid

#### Enclosure material

glass-fiber reinforced, polyester

#### Protection class

IP 65

#### Terminals

2.5 mm<sup>2</sup>, fine stranded

#### Pressure time

MIN A = 0 to 25 mbar  
MIN B = 0 to 25 mbar  
MAX = 0 to 25 mbar  
MAX 1 = 0 to 25 mbar  
DIFF A = 0 to 25 mbar  
DIFF B = 0 to 25 mbar

#### Purging time

0 bis 99 min; 5 sec. dropout delay

#### Weight

11 kg

#### Electrical data

##### Supply voltage

AC 230 (AC 115 V)  $\pm 10\%$

##### Power consumption

$P_v = 15 \text{ W/230 V}$

##### Make contact

K 2/3, 5 A for  $\cos \varphi = 1$   
K 4 and K 5, voltage free

##### Temperature switching value (optional)

0 °C to +80 °C



## SILAS Controller

### Features

- Small configuration
- Easy to handle
- Separate purging gas input and output

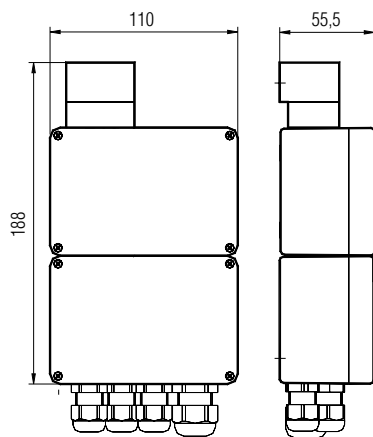
### Description

The SILAS controller serves to monitor electrical operating equipment that is set up in accordance with the „pressurised apparatus with leakage compensation“. The SILAS controller serves to monitor electrical operating equipment that is set up in accordance with the pressurised apparatus with leakage compensation

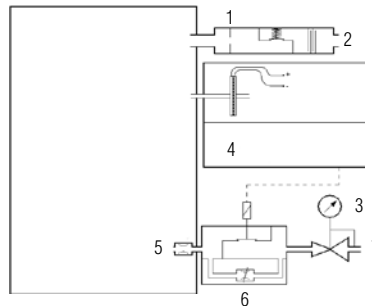
It is a complete safety device, which consists of a Type A7-3741-1110/000 SILAS controller and a type 17-51P3-1604 pressure control device. It is a complete safety device, which consists of a type A7-3741-1110/\*000 SILAS controller and a Type 17-51P3-1604 pressure control device.

It is also necessary to have an optional digital purging gas valve to supply protective gas.

### Dimensions

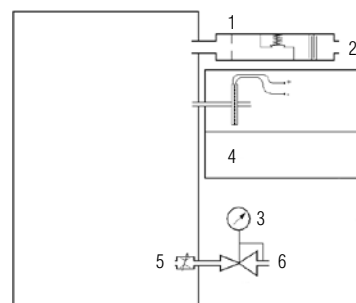


### Solution variant pz



1. Pressure monitor module (17-51P3-1604)
2. Protective gas outlet
3. Pressure reducer (05-0056.)
4. SILAS controller (A7-3741-1100/000)
5. Purging air nozzle
6. Optional digital purging gas valve (e. g. 03-5110-00.)
7. Protective gas supply

### Solution variant pD



1. Pressure monitor module (17-51P3-1604)
2. Protective gas outlet
3. Pressure reducer (05-0056..)
4. SILAS controller (A7-3741-1100/000)
5. Purging air nozzle
6. Optional digital purging gas valve (e. g. 03-5110-00..)
7. Protective gas supply







## ➔ Explosion protection

### Ex protection type/ambient temperature

**ATEX**  II 3G Ex nA nC [pz] IIC T4 Gc  
-20 °C to +60 °C

 II 3G Ex nA nC [pz] IIC T6 Gc  
-20 °C to +40 °C

 II 3D Ex tc [p] IIIB T85 °C Dc

### Certification

TÜV 09 ATEX 553359

**IECEx** Ex nA nC [pz] IIC T4 Gc

-20 °C to +60 °C

Ex nA nC [pz] IIC T6 Gc

-20 °C to +40 °C

Ex tc [p] IIIB T85 °C Dc

### Certification

IECEx TUN 10.0030 X

See [www.bartec.-group.com](http://www.bartec.-group.com) for more approvals and certification.

### Approved for

Zone 2 and Zone 22

## ➔ Technical data

### Operating elements

- LCD display
- 1 power switch
- 1 BCD switch for selecting parameters
- 3 buttons for changing parameters
- 3 LEDs for displaying switching relay status
- 1 bypass

1

2

3

4

5

6

7



## Motor Purge Controller MPC

### Features

- Automatically functioning Ex px purge system for electric motors
- Fail-safe control – SIL 2
- Purging/operation status display

### Description

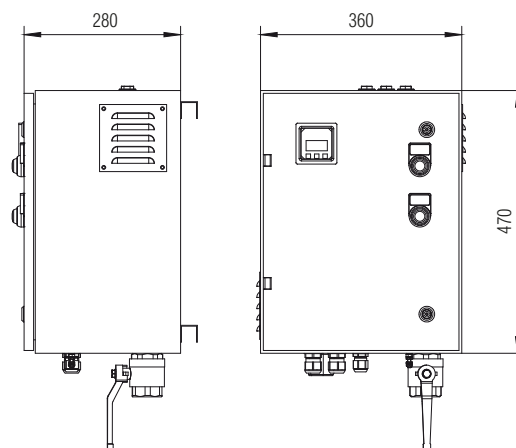
The motor purge control system consisting of an MPC Motor Purge Controller and an MPV Motor Purge Valve (outlet valve) is a unit which allows the safe operation of electric motors in hazardous environments.

The explosion protection is ensured by means of a pressurised enclosure with leakage loss compensation.

The Motor Purge Control System monitors, controls and regulates the supply of purge gas to the Ex p motor.

Any faults that arise within the system or during the supply of purge gas will be reliably reported and deactivated by a safe disconnection of the Ex p motor.


### Dimensions





## ➔ Explosion protection

### Ex protection type Zone 1

**ATEX**  II 2(1)G Ex de [ia Ga px] IIC T4 Gb

#### Certification


DMT 99 ATEX E 082

**IECEx** Ex de [ia Ga px] IIC T4 Gb

#### Certification

IECEx BVS 13.0039

### Ex protection type Zone 2

**ATEX**  II 3G Ex nA nC [ic pz] IIC T4 Gc

### Further approvals

see BARTEC Internet: [www.bartec-group.com](http://www.bartec-group.com)

### Ambient temperature

-20 °C to +40 °C

### Directives

2004/108/EC

94/9/EC

## ■ Electrical data

### Supply voltage

AC 230 V (AC 115 V) ± 10 %

### Power consumption

P = approx. 20 W/AC 230 V

### Signal contacts

#### Enabling contact K2/(Ex p operation)

K2/3, 5 A at  $\cos \phi = 1$ , non-floating

#### Signal contact K4 (purging operation)

floating, 500 mA at AC 250 V/DC 80 V

#### Signal contact K5

(switching level freely assignable)

floating, 500 mA at AC 250 V/DC 80 V

## ➔ Technical data

### Construction

inside the protective housing

### Varnish

RAL 7035

### Enclosure material

sheet steel (stainless steel on request)

### Protection class

IP 55 (internal components IP 65)

### Connection terminals

2.5 mm<sup>2</sup>

### Pressure measuring range

0 to 25 mbar

### Purge time

0 to 99 minutes (settable)

## ■ Supply of purge gas

### Inlet

R 1" internal thread MPC S2

R 1 1/2" internal thread MPC S3

### Outlet

R 1" internal thread

### Signal lines

3 x pipe connection 10 mm

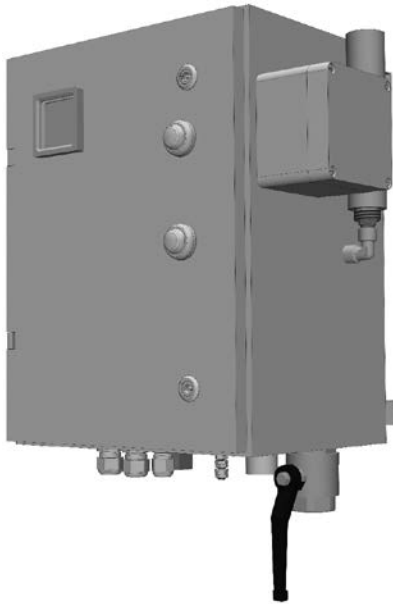
### Flow rate

0 to 180 m<sup>3</sup> MPC S2

0 to 450 m<sup>3</sup> MPC S3

### Leakage compensation

0.05 l/s to 11.5 l/s



## *Motor Purge Controller MPC*

*with extended temperature range*

### Features

- Automatically functioning Ex px purge system for electric motors
- Fail-safe control – SIL 2
- Purging/operation status display

### Description

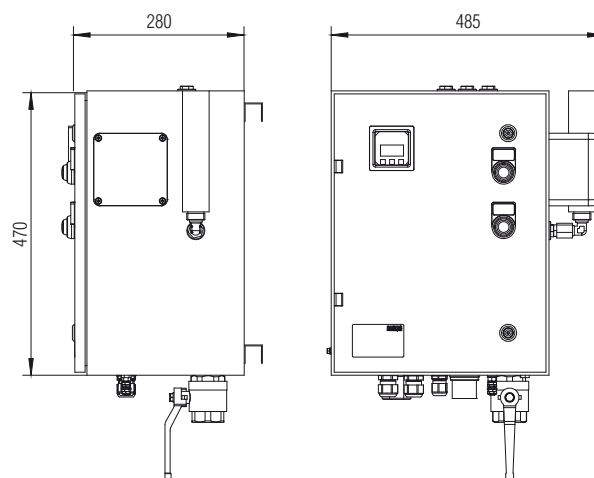
The motor purge control system consisting of an MPC Motor Purge Controller and an MPV Motor Purge Valve (outlet valve) is a unit which allows the safe operation of electric motors in hazardous environments.

The explosion protection is ensured by means of a pressurised enclosure with leakage loss compensation.

The Motor Purge Control System monitors, controls and regulates the supply of purge gas to the Ex p motor.

Any faults that arise within the system or during the supply of purge gas will be reliably reported and deactivated by a safe disconnection of the Ex p motor.


### Dimensions





## ➔ Explosion protection

### Ex protection type Zone 1

**ATEX**  II 2(1)G Ex de [ia Ga px] IIC T4 Gb

#### Certification


DMT 99 ATEX E 082

**IECEx** Ex de [ia Ga px] IIC T4 Gb

#### Certification

IECEx BVS 13.0039

### Ex protection type Zone 2

**ATEX**  II 3G Ex nA nC [ic pz] IIC T4 Gc

### Further approvals

see BARTEC Internet: [www.bartec-group.com](http://www.bartec-group.com)

### Ambient temperature

-20 °C to +45 °C

### Directives

2004/108/EC

94/9/EC

## ■ Electrical data

### Supply voltage

AC 230 V (AC 115 V) ± 10 %

### Power consumption

P = approx. 20 W/AC 230 V

### Signal contacts

#### Enabling contact K2/3 (Ex p operation)

K2/3, 5 A at  $\cos \phi = 1$ , non-floating

#### Signal contact K4 (purging operation)

floating, 500 mA at AC 250 V/DC 80 V

#### Signal contact K5

(switching level freely assignable)

floating, 500 mA at AC 250 V/DC 80 V

## ➔ Technical data

### Construction

inside the protective housing

### Varnish

RAL 7035

### Enclosure material

sheet steel (stainless steel on request)

### Protection class

IP 55 (internal components IP 65)

### Connection terminals

2.5 mm<sup>2</sup>

### Pressure measuring range

0 to 25 mbar

### Purge time

0 to 99 minutes (settable)

## ■ Supply of purge gas

### Inlet

R 1" internal thread MPC S2

R 1 1/2" internal thread MPC S3

### Outlet

R 1" internal thread

### Signal lines

3 x pipe connection 10 mm

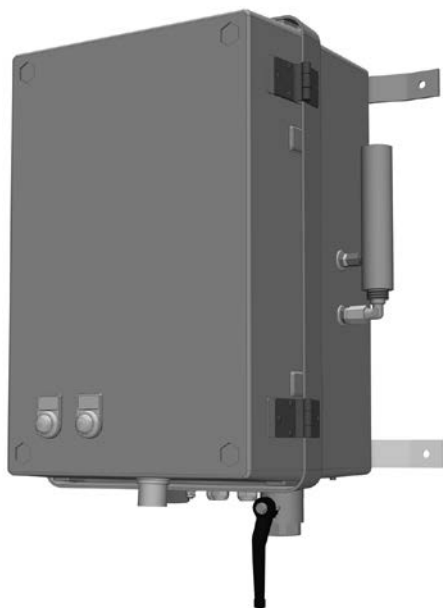
### Flow rate

0 to 180 m<sup>3</sup> MPC S2

0 to 450 m<sup>3</sup> MPC S3

### Leakage compensation

0.05 l/s to 11.5 l/s



## *Motor Purge Controller MPC*

*High temperature*

### Features

- Automatically functioning Ex px purge system for electric motors
- Fail-safe control – SIL 2
- Purging/operation status display

### Description

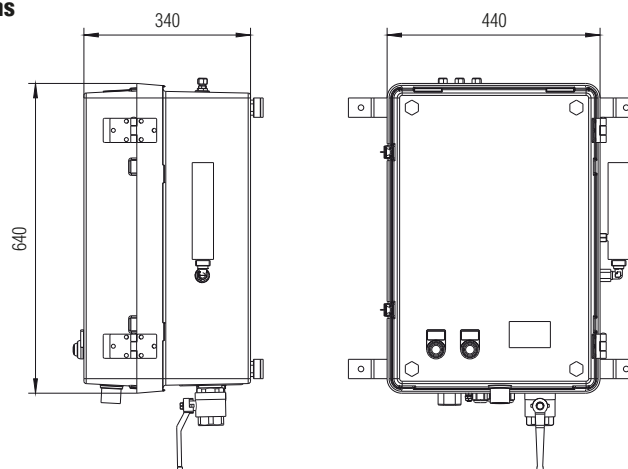
The motor purge control system consisting of an MPC Motor Purge Controller and an MPV Motor Purge Valve (outlet valve) is a unit which allows the safe operation of electric motors in hazardous environments.

The explosion protection is ensured by means of a pressurised enclosure with leakage loss compensation.

The Motor Purge Control System monitors, controls and regulates the supply of purge gas to the Ex p motor.

Any faults that arise within the system or during the supply of purge gas will be reliably reported and deactivated by a safe disconnection of the Ex p motor.


### Dimensions





## ➔ Explosion protection

### Ex protection type Zone 1

**ATEX**  II 2(1)G Ex de [ia Ga px] IIC T4 Gb

#### Certification


DMT 99 ATEX E 082

**IECEX** Ex de [ia Ga px] IIC T4 Gb

#### Certification

IECEX BVS 13.0039

### Ex protection type Zone 2

**ATEX**  II 3G Ex nA nC [ic pz] IIC T4 Gc

### Further approvals

see BARTEC Internet: [www.bartec-group.com](http://www.bartec-group.com)

### Ambient temperature

-30 °C to +50 °C

### Directives

2004/108/EC

94/9/EC

## ■ Electrical data

### Supply voltage

AC 230 V (AC 115 V) ± 10 %

### Power consumption

P = approx. 25 W/AC 230 V

### Signal contacts

#### Enabling contact K2/3

##### (Ex p operation)

K2/3, 5A at  $\cos \phi = 1$ , non-floating

#### Signal contact K4 (purging operation)

floating, 500 mA at AC 250 V/DC 80 V

#### Signal contact K5

##### (switching level freely assignable)

floating, 500 mA at AC 250 V/DC 80 V

## ➔ Technical data

### Construction

inside the protective housing

### Varnish

RAL 7032

### Enclosure material

Polyester (glass-fibre-reinforced)

### Protection class

IP 65

### Connection terminals

2.5 mm<sup>2</sup>

### Pressure measuring range

0 to 25 mbar

### Purge time

0 to 99 minutes (settable)

## ■ Supply of purge gas

### Inlet

R 1" internal thread MPC S2

R 1 1/2" internal thread MPC S3

### Outlet

R 1" internal thread

### Signal lines

3 x pipe connection 10 mm

### Flow rate

0 to 180 m<sup>3</sup> MPC S2

0 to 450 m<sup>3</sup> MPC S3

### Leakage compensation

0.05 l/s to 11.5 l/s



## Motor Purge Valve MPV

### Features

- Mounting position independently

### Description

The motor purge control system consisting of an MPC Motor Purge Controller and an MPV Motor Purge Valve (outlet valve) is a unit which allows the safe operation of electric motors in hazardous environments.

The explosion protection is ensured by means of a pressurised enclosure with leakage loss compensation.

The Motor Purge Control System monitors, controls and regulates the supply of purge gas to the Ex p motor.

Any faults that arise within the system or during the supply of purge gas will be reliably reported and deactivated by a safe disconnection of the Ex p motor.

### Technical data

#### Construction

valve-controlled outlet for MPC

#### Varnish

RAL 7035

#### Enclosure material

Sheet steel (stainless steel on request)

#### Protection class

IP 65

#### Pressure relief

integrated, opens at 50 mbar

#### Connections

2 x pipe connection 10 mm

#### Mounting

horizontal or vertical

#### Flying spark and particle barrier

integrated

#### Flow rate

0 to 180 m³/h at MPV 2 with MPC 2  
0 to 450 m³/h at MPV 3 with MPC 3

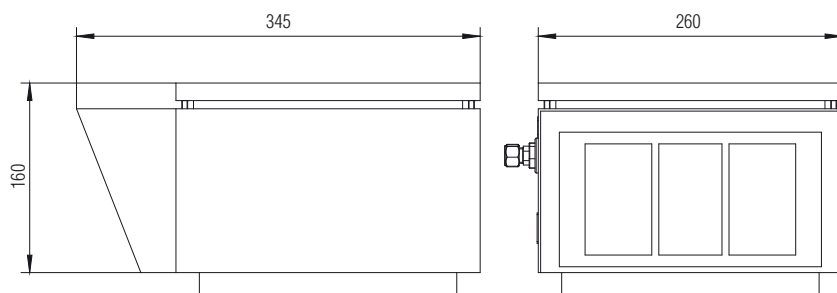
#### Connection flange

DIN2633 NW 50 PN16 (MPV 2)  
DIN2633 NW 100 PN16 (MPV 3)  
(Dimensions and details see  
Operating Instructions)

#### Ambient temperature

-30 °C to +60 °C

### Dimensions









## Pressurized cabinets

### TNCNP Cabinets

**BARTEC** **TECHNOR**

## Features

BARTEC TECHNOR's Ex p pressurized cabinets are designed and purpose built according to each client's requirements. Our ability to deliver "Custom Made" is one of the main reasons for choosing a BARTEC TECHNOR solution. We deliver turn-key solutions with cabinets made in stainless steel 316L, certified by DNV.

### Main advantages by choosing TNCNP Cabinets:

- Large flexibility regarding design of cabinets.
- Tailor-made solutions according to clients request.
- Excellent solution by use of electrical components with:
  - high heat dissipation
  - large physical measures and weight

- High operational reliability and cost efficiency, reduced lifetime maintenance costs.
- ATEX approved.

### Options:

- Windows (max.size: 0,3m<sup>2</sup> for each window)
- Mounting plates
- Lifting lugs
- Plinth
- Multi cable transit frames (MCT)
- Certified components mounted in door or walls
- One or several doors
- Air Condition cooling/heating units

## Applications

For use of standard (non-ex) electrical components in Zone 1 and 2:

- Monitoring systems
- Control systems
- HMI/Computers
- Driller consoles
- Large motor starters
- Transformers
- VDF's

## General Specifications

Material	Stainless steel 316L
IP Rating	IP66/IP67 (Cabinets) IP65 when Ex p controller fitted
Ambient temperature	-20°C to +60°C
Optional	-40°C to +60°C
ATEX approvals:	
- Complete system	Zone 1: BVS11ATEXE144 Zone 2: BVS11ATEXE145
- Empty enclosure	DNV-2003-OSL-ATEX-0027U
IECEx complete system	Zone 2: IECEx BVS 11.0070
GOST R Complete system	Zone1/2: POCC DE.ME92.1302732
Standards	IEC: 60079-0, 60079-2. 60079-11
Ex-code	Ⓔ II 2 G / II 3 G Ex p II / Ex px IIC / Ex pz IIC
Lid/Door gasket	Neoprene (operating temp. -40°C to +100°C) Silicone (operating temp. -40°C to +200°C)
Surface treatment	Shotblasting and Acidized as standard



## Pressurized cabinets

TNCNP Cabinets

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### Hazardous area information & terminology

#### ATEX Directive

The ATEX Directive, derived from the French “AT mosphères EXplosibles” and formally known as 94/9/EC, contains the ESR (Essential Safety Requirements) to which electrical equipment and protective systems used within potentially explosive atmospheres must conform.

The new ATEX Directive currently in place within the European Union was made mandatory on 1st July 2003. Primarily intended for manufacturers of hazardous area equipment for use in the presence of flammable gases, vapours, fumes or dusts, the new directive requires a quality management system to be implemented.

Procedures for the design, manufacture and verification of products are to be approved by a notified body (i.e. DNV, NEMKO, etc.) and all equipment conforming to the new directive will feature CE and Ex Marking.

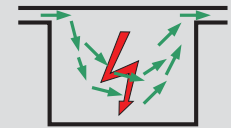
#### Zone Classification with the presence of GAS

Zone 1 (Category 2)	An area in which explosive gas is likely to be present during normal operation of the plant.
Zone 2 (Category 3)	An area in which explosive gas is not continuously present, but may exist for a short period of time.

#### Applicable EX protection

##### Ex p Protection

The ingress of the surrounding atmosphere into the housing of electrical equipment is prevented by maintaining an ignition shield gas (air or a different suitable gas) inside it at a pressure above atmospheric pressure. The overpressure is maintained with continuous flushing of the protective gas.





## Digital purging gas valve for Ex px operating equipment

### Description


The proportional purging gas valve activated by the APEX controller conducts the supplied purging gas into the Ex px control cabinet.

During the purging phase the purging gas valve opens far enough to allow the max. purging gas pressure to be reached and ensure purging pressure in the encapsulated control cabinet.

After the purging phase the purging gas valve closes. The leakage from the Ex px control cabinet is compensated by the valve's linear opening.

### Explosion protection

#### Ex protection type

**ATEX**  II 2G Ex m II T4

#### Certification

PTB 00 ATEX 2129X

**IECEx** Ex m II T4

#### Certification

IECEx PTB 07.0021X

See [www.bartec.-group.com](http://www.bartec.-group.com) for more approvals and certification.

#### Approved for

Zone 1 and Zone 2

#### Ambient temperature

-10 °C to +55 °C

### Technical data

#### Adjusting elements

Adjustment screw to set the quantity of leakage air

#### Supply voltage

AC 230 V/9 W/50 to 60 Hz  
AC 115 V/9 W/50 to 60 Hz  
DC 24 V/9 W

#### Voltage tolerance

± 10%

#### Pressure range

0 to 16 bar

#### Connection

3-metre cable or terminal box

#### Valve connection

G 3/8"

#### Nominal diameter

13 mm

#### Max. Ex px control cabinet capacity

2.000 litres

#### Weight

approx. 1.2 kg

#### Protection class

IP 65

#### Assembly

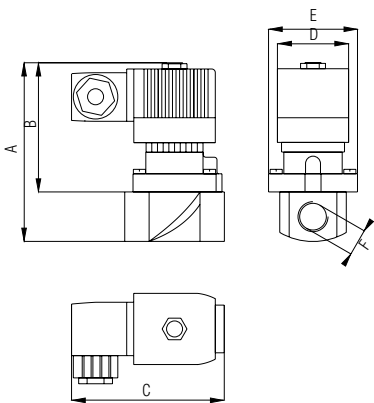
Inside Ex px operating equipment

#### Scope of supply

Valve  
2 x purging air nozzle, without boreholes



Dimensions



Purging air nozzle		
Ex px control cabinet capacity	Recommended purging air nozzle	Recommended orifice APEX controller
< 50 litres	Ø 2.8 mm	12 mm
≥ 50 litres < 300 litres	Ø 3.9 mm	15 mm
≥ 300 < 700 litres	Ø 4.5 mm	18 mm
≥ 1000 litres	Ø 5.5 mm	2 x 18 mm

Dimensions in mm

G 3/8"	Type
100	A
72	B
56	C
40	D
40	E
G 3/8"	F



## Proportional purging gas valve for Ex px operating equipment

### Description

The proportional purging gas valve activated by the APEX controller conducts the supplied purging gas into the Ex px control cabinet.


During the purging phase the purging gas valve opens far enough to allow the max. purging gas pressure to be reached and ensure purging pressure in the encapsulated control cabinet.

After the purging phase the purging gas valve closes. The leakage from the Ex px control cabinet is compensated by the valve's linear opening.

Only the actual loss by leakage is compensated when the proportional purging gas valve is used.

### Explosion protection

#### Ex protection type

**ATEX**  II 2G Ex m II T4

#### Certification

PTB 00 ATEX 2202X

**IECEx** Ex m II T4

#### Certification

IECEx PTB 13.0011 X

#### Ambient temperature

-10 °C to +55 °C

### Technical data

#### Supply voltage

AC 230 V/15 W/50 to 60 Hz

AC 115 V/15 W/50 to 60 Hz

#### Voltage tolerance

± 10 %

#### Pressure range

0 to 4 bar

#### Valve connection

G 3/8"

#### Nominal diameter

6.0 mm

#### Max. Ex px control cabinet capacity

1,000 litres

#### Weight

approx. 1.2 kg

#### Protection class

IP 65

#### Assembly

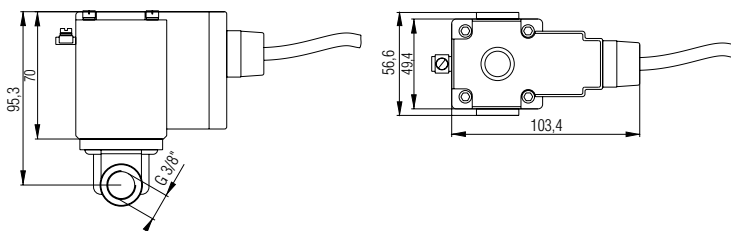
Inside Ex px operating equipment

#### Scope of supply

valve with 3-m connection cable

2 x purging air nozzle, without boreholes

#### Dimensions mm





## Digital purging gas valve for Ex pz operating equipment

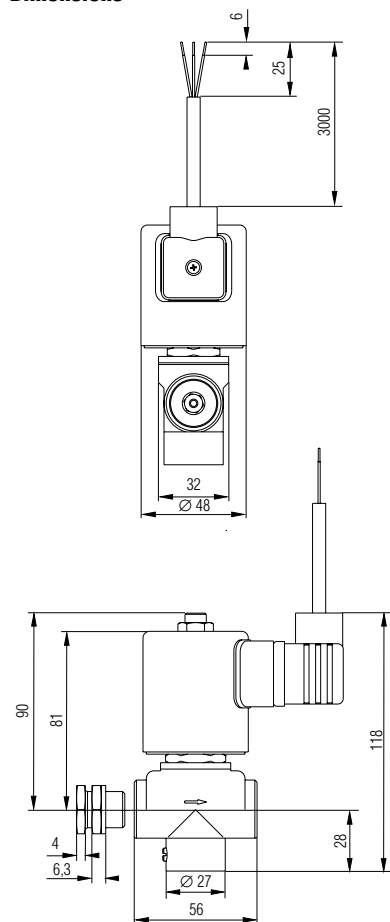
### Description

The digital purging gas valve activated by the SILAS controller conducts the supplied purging gas into the Ex pz control cabinet.

During the purging phase the purging gas valve opens and accordingly ensures purging pressure in the encapsulated control cabinet.

After the purging phase the purging gas valve closes. The leakage from the Ex pz control cabinet is compensated by an integrated adjustable leakage air valve.

### Dimensions



<sup>1)</sup> Ø 2.8 mm and Ø 3.9 mm; <sup>2)</sup> Ø 5.5 mm and Ø 7.7 mm

### Explosion protection

#### Ex protection type

Ex II 3G Ex nA T4

#### Ambient temperature

-10 °C to +40 °C

#### permitted for

Zone 2

### Technical data

#### Adjusting elements

Adjustment screw to set the quantity of leakage air

#### Supply voltage

AC 230 V/6,5 VA/50 to 60 Hz

AC 115 V/5,6 VA/50 to 60 Hz

DC 24 V/6,0 W

#### Voltage tolerance

± 10%

#### Pressure range

0 to 4 bar

#### Valve connection

G 3/8"

#### Nominal diameter

6,0 mm

#### Control cabinet borehole

17 mm

#### Weight

approx. 1,2 kg

#### Protection class

IP 65

with mounted appliance outlet

#### Assembly

Inside Ex pz operating equipment

#### Scope of supply

Valve with 3-m connection cable

Purging air nozzle

Bulkhead union



## Pressure monitor module

### Description

The pressure monitor module is a constituent part of pressurised controls. Various variants are available for applications in Zone 1, 2 and 22.

#### Function

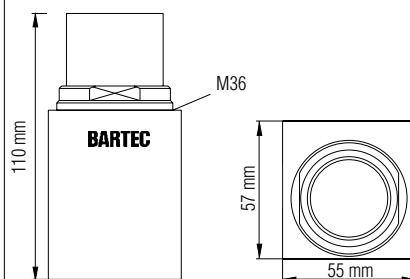
##### Pressure monitor module for Zone 1

- pressure monitor module
- pickup points for measuring the flow rate

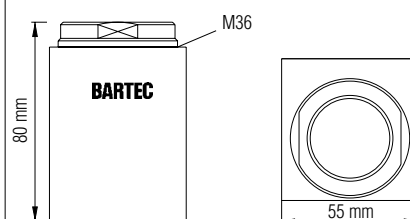
##### Pressure monitor module for Zone 2 and 22

- pressure monitor module
- through-flow valve

#### Dimensions Variant for Zone 1



#### Dimensions Variant for Zone 2



### Pressure monitor module Zone 1

#### Technical data

##### Temperature range

-20 °C to +80 °C

##### Installation

in the Ex px operating equipment

##### Assembly borehole

Ø 37 mm

##### Connection

Quick plug-in connector for hose

##### Flying spark barrier

3-fold

##### Mounting position

- any position
- plastic body inside Ex p operating equipment

##### Opening pressure

3 mbar

##### Orifice plate

17-51P3-1403	12 mm
17-51P3-1503	15 mm
17-51P3-1603	18 mm

##### Protection class

IP 65

### Pressure monitor module Zone 2 and 22

#### Technical data

##### Temperature range

-20 °C to +80 °C

##### Installation

in the Ex pz/pD operating equipment

##### Assembly borehole

Ø 37 mm

##### Flying spark barrier

2-fold (1x for each input and output)

##### Mounting position

- any position
- plastic body inside Ex pz/pD operating equipment

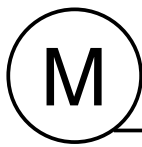
##### Opening pressure

3 mbar

##### Protection class

IP 54





## Pressure monitor module

### Description

The pressure monitor module is a constituent part of pressurised controls. Various variants are available for applications in Zone 1, 2 and 22.

#### Function

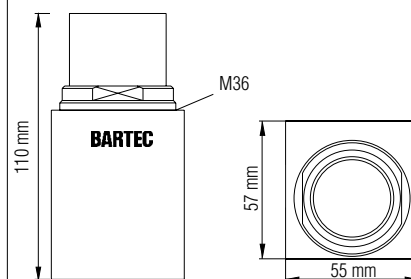
##### Pressure monitor module for Zone 1

- pressure monitor module
- pickup points for measuring the flow rate

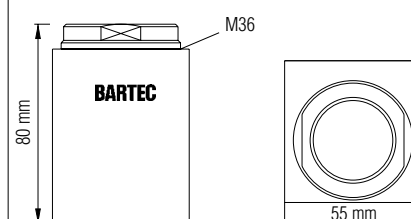
##### Pressure monitor module for Zone 2 and 22

- pressure monitor module
- through-flow valve

#### Dimensions Variant for Zone 1



#### Dimensions Variant for Zone 2



### Pressure monitor module Zone 1

#### ➔ Technical data

##### Temperature range

-20 °C to +80 °C

##### Installation

in the Ex px operating equipment

##### Assembly borehole

Ø 37 mm

##### Connection

Quick plug-in connector for hose

##### Flying spark barrier

3-fold

##### Mounting position

- any position
- plastic body inside Ex p operating equipment

##### Opening pressure

3 mbar

##### Orifice plate

17-51P3-1403 12 mm

17-51P3-1503 15 mm

17-51P3-1603 18 mm

##### Protection class

IP 65

### Pressure monitor module Zone 2 and 22

#### ➔ Technical data

##### Temperature range

-20 °C to +80 °C

##### Installation

in the Ex pz/pD operating equipment

##### Assembly borehole

Ø 37 mm

##### Flying spark barrier

2-fold (1x for each input and output)

##### Mounting position

- any position
- plastic body inside Ex pz/pD operating equipment

##### Opening pressure

3 mbar

##### Protection class

IP 54




## Sensor Module

### Features

- Easy installation
- Simple operation

### Explosion protection

#### Ex protection type

ATEX  II 2G Ex ib IIC T4, T6

#### Certification

DMT 99 ATEX E 108 X

IECEx Ex ib IIC T4, T6

#### Certification

IECEx BVS 09.0055X

Further approvals and test certificates can be found at [www.bartec.de](http://www.bartec.de)

#### permitted for

Zone 1 and 2

### Technical data

#### Construction

Screwed onto mounting plate  
Front assembly with mounting frames

#### Enclosure materials

Plastic housing with metal front plate

#### Protection class

min. IP 20

#### Displays

LCD on front panel of enclosure

#### Control elements

Membrane push-buttons

#### Weight

1.0 kg

### Description

The sensor module is designed for use in APEX controllers. Its functions are to measure system-specific pressure levels and display parameters and pressure levels.

The sensor module is directly connected to the APEX controller, which supplies it with the necessary intrinsically safe voltage.

Measured signals are passed on with intrinsic safety to the APEX controller module. Depending on the variant, the sensor module is connected either by means of individual core wires or by a sheathed lead.

### Ambient temperature

-20 °C up to +60 °C (operation)  
-20 °C up to +60 °C (storage)

### Electrical data

#### Power consumption

$P_V = 1.2 \text{ W}$

#### Ex i circuit

##### Supply circuit

$U_i = 30 \text{ V}$   
 $C_i = 50 \text{ nF}$   
 $L_i = \text{negligible}$

##### Supply circuit LCD

$U_i = -7.5 \text{ V}$   
 $I_i = 10 \text{ mA}$   
 $P_i = 20 \text{ mW}$   
 $C_i = \text{negligible}$   
 $L_i = \text{negligible}$

##### Signal circuits

$U_i = 7.5 \text{ V}$   
 $C_i = 1 \mu\text{F}$   
 $L_i = \text{negligible}$

##### Combined supply and signal circuits

maximum total current = 250 mA  
maximum total power = 1.2 W

### Option

T6 special design on request



## Description

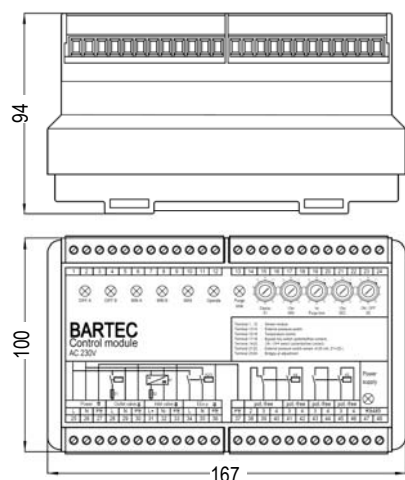
The control module is designed for use in APEX control units.

Its functions are the control, regulation and signalling for Ex p operating equipment.

All components in the APEX control are connected, controlled and monitored on the control module.

The components are connected by means of terminals.

## Dimensions in mm



## Explosion Protection

### Ex Protection Type

Ex II 2(1) G  
Ex d e [ia Ga] IIC Gb

Mounting: (Typ 17-5522-2..)

Ex II (1) G [Ex ia Ga px] IIC

0044

### Certification

Enclosure:  
PTB 97 ATEX 1066U  
IECEX PTB 11.0082U  
Installation:  
DMT 99 ATEX E082  
IECEX BVS 13.0039

### Ex i circuit

#### Supply circuit 1

$U_0=30\text{ V}$   
 $I_0=100\text{ mA}$   
 $P_0=750\text{ mW}$   
 $C_0=66\text{ nF}$   
 $L_0=3\text{ mH}$

#### Supply circuit 2

$U_0=7.5\text{ V}$   
 $I_0=10\text{ mA}$   
 $P_0=20\text{ mW}$   
 $C_0=11\text{ }\mu\text{F}$   
 $L_0=330\text{ mH}$

#### Signal circuit 1

$U_0=7.5\text{ V}$   
 $I_0=50\text{ mA}$   
 $P_0=95\text{ mW}$   
 $C_0=11\text{ }\mu\text{F}$   
 $L_0=14\text{ mH}$

#### Signal circuit 2

$U_0=-7.5\text{ V}$   
 $I_0=10\text{ mA}$   
 $P_0=20\text{ mW}$   
 $C_0=11\text{ }\mu\text{F}$   
 $L_0=330\text{ mH}$

#### Signal circuit 3

$U_0=-30\text{ V}$   
 $I_0=100\text{ mA}$   
 $P_0=750\text{ mW}$   
 $C_0=66\text{ nF}$   
 $L_0=3\text{ mH}$

### Ambient temperature

-20 °C to +40 °C (operation)  
-40 °C to +60 °C (storage)

### Approved for Zones

1 and 2

## Technical Data

### Construction

Flameproof clip-on enclosure for TS35

### Enclosure materials

High-quality thermoplastics

### Protection class

Electronic installation	IP66
Terminals	IP20
Terminals with cover	IP30

### Connection terminals

2.5 mm<sup>2</sup>, fine-stranded

### Displays

LED in the front of the enclosure

### Controls

Rotary switch in the front of the enclosure

### Weight

2.5 kg

## Electrical data

### Supply voltage

AC 230 V  $\pm 10\%$   
AC 115 V  $\pm 10\%$   
DC 24 V  $\pm 10\%$

### Power consumption

$P_V=8\text{ W}/230\text{ V}$

### Make contacts

K 2/3, 5 A at  $\cos \varphi = 1$   
K 4 and K 5; 5 A; potential free

### Purging gas valve

Digital or proportional  
(type-dependent)

### Purging gas valve power

9 watts (type-dependent)  
15 watts (type-dependent)



Pressure reducer

## Description

This upstream connecting pressure reducer is a diaphragm pressure regulator with secondary venting for lowering the pressure of externally supplied compressed air.

The settings are made by means of a handwheel. The set reduced pressure can be read on a pressure gauge.

### Ambient conditions

**Ambient temperature** -10 °C bis +60 °C

**Medium temperature** -10 °C to +40 °C

**for Ex p operating equipment** Zone 1 and 2

### Pressure reducer 1/4" with pressure gauge

#### Technical data

##### Operating elements

Handwheel for setting the air pressure;  
Handwheel held in place by means of a locknut

##### Installation

Mounting position is optional, observe the flow direction marking on the enclosure;  
Mounting in control cabinet borehole:  $\varnothing$  17.5 mm

##### Max.

**input pressure ( $p_1$ )** 16 bar

**Pressure regulation range ( $p_2$ )** 0.5 to 6 bar, infinitely variably

##### Connections

Air connection G 1/4"  
Pressure gauge connection G 1/4"  
Nominal diameter DN 6

**Nominal flow rate (QN)** 1000 l/min

**Weight** with pressure gauge approx. 0.55 kg

##### Material

Enclosure: zinc die casting  
Diaphragm, seals: NBR  
Compression spring: steel, galvanised  
Counterpressure spring: stainless steel

##### Scope of supply

Pressure reducer, 2 x gaskets,  
Bulkhead nipples G1 / 4"i / G3 / 8"a  
Double nipples detachable G1 / 4" / G1 / 4"

### Pressure reducer 1/2" with pressure gauge

#### Technical data

##### Operating elements

Handwheel for setting the air pressure;  
Handwheel held in place by means of a locknut

##### Installation

Mounting position is optional, observe the flow direction marking on the enclosure;  
Mounting in control cabinet borehole:  $\varnothing$  21 mm

##### Max.

**input pressure ( $p_1$ )** 25 bar

**Pressure regulation range ( $p_2$ )** 0.5 to 6 bar, infinitely variably

##### Connections

Air connection G 1/2"  
Pressure gauge connection G 1/4"  
Nominal diameter DN 15

**Nominal flow rate (QN)** 2.200 l/min

**Weight** with pressure gauge approx. 1.2 kg

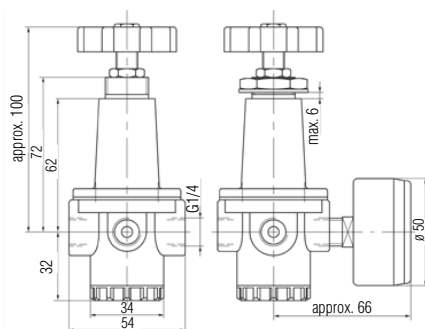
##### Material

Enclosure: zinc die casting  
Diaphragm, seals: NBR  
Compression spring: steel, galvanised  
Counterpressure spring: stainless steel

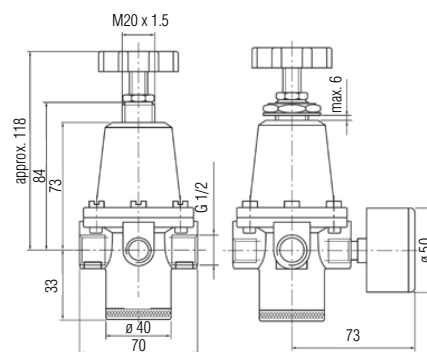
##### Scope of supply

Pressure reducer, 2 x gaskets,  
Bulkhead nipples G1 / 4"i / G3 / 8"a  
Double nipples detachable G1 / 4" / G1 / 4"

### Dimensions in mm, Pressure reducer 1/4"



### Dimensions in mm, Pressure reducer 1/2"





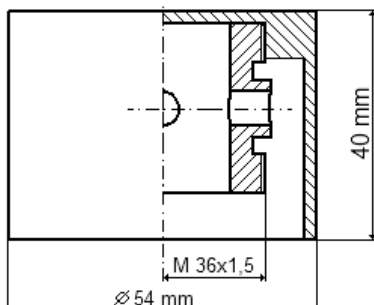
## Description

The rain-/dust protection cap for the controller APEX protects the pressure outlet device exit against rain or dust deposits.

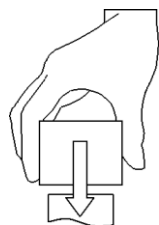
As optional accessories rain-/dust protection cap can be used for controller APEX with an internal orifice by up to 15 mm.

For the assembly the rain-/dust protection cap is screwed the integrated M 36 thread into the pressure outlet device exit.

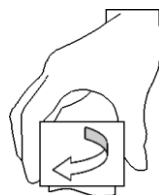
## Dimensions:



## Mounting:



- 1. Step:**  
Put Cap on



- 2. Step:**  
Screw Cap on

05-0032-7B0001-07/11-STVT

## Technical data

### Dimensions

54 mm x 40 mm  
( 2.13 inch x 1.57 inch)

### Material

PVC, black

### Temperature range

-20 °C bis +60 °C  
(-4 °F bis +140 °F)

### Weight

48 g

### Mounting

screwed into pressure outlet device

### Use

for controller APEX with an internal orifice by up to 15 mm

## Contactos/Contacts:

### Comercial/Commercial:

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