

## EPS 18 ATEX 1088X

Device with II 2G/D Ex i approval  
Geräte mit II 2G/D Ex i Zulassung  
Appareils avec mode de protection II 2G/D Ex i



## Operating Instructions

Bedienungsanleitung  
Manuel d'utilisation



We reserve the right to make technical changes without notice.  
Technische Änderungen vorbehalten.  
Sous réserve de modifications techniques.

© Bürkert Werke GmbH & Co. KG, 2002 - 2020

Operating Instructions 2004/00\_EU-ML\_00815312 / Original DE



<b>1</b>	<b>OPERATING INSTRUCTIONS</b> .....	<b>4</b>	<b>8</b>	<b>START-UP</b> .....	<b>12</b>
1.1	Symbols.....	4	8.1	Safety instructions.....	12
<b>2</b>	<b>INTENDED USE</b> .....	<b>5</b>	8.2	Start-up .....	12
2.1	Restrictions .....	5	<b>9</b>	<b>MAINTENANCE, TROUBLESHOOTING</b> .....	<b>13</b>
2.2	Explosion protection approval.....	5	9.1	Safety instructions.....	13
<b>3</b>	<b>BASIC SAFETY INSTRUCTIONS</b> .....	<b>6</b>	9.2	Maintenance work .....	13
<b>4</b>	<b>GENERAL NOTES</b> .....	<b>7</b>	9.3	Troubleshooting.....	13
4.1	Contact address .....	7	<b>10</b>	<b>TRANSPORT, STORAGE, PACKAGING</b> .....	<b>13</b>
4.2	Warranty .....	7			
4.3	Information online.....	7			
<b>5</b>	<b>OPERATIONAL CONDITIONS OF THE DEVICES</b> .....	<b>7</b>			
5.1	Usage in an Ex area.....	7			
5.2	Operate only with the appropriate valve.....	7			
5.3	Single installation, block installation .....	7			
<b>6</b>	<b>TECHNICAL DATA</b> .....	<b>8</b>			
6.1	Conformity.....	8			
6.2	Standards.....	8			
6.3	Operating conditions.....	8			
6.4	Use in areas at risk of gas explosions.....	9			
6.5	Use in areas at risk of dust explosions.....	10			
<b>7</b>	<b>INSTALLATION</b> .....	<b>11</b>			
7.1	Safety instructions.....	11			
7.2	Example installation of coil for Type 6013.....	11			
7.3	Port connection .....	12			

## 1 OPERATING INSTRUCTIONS

The operating instructions describe the entire life cycle of the device. Keep these instructions in a location which is easily accessible to every user and make them available to every new owner of the device.

The operating instructions contain important safety information!

Failure to observe these instructions may result in hazardous situations.

- ▶ The operating instructions must be read and understood.

### 1.1 Symbols



#### **DANGER!**

Warns of an immediate danger!

- ▶ Failure to observe these instructions will result in death or serious injuries.



#### **WARNING!**

Warns of a potentially hazardous situation!

- ▶ Failure to observe these instructions may result in serious injuries or death.



#### **CAUTION!**

Warns of a potential danger!

- ▶ Failure to observe these instructions may result in moderate or minor injuries.

#### **NOTE!**

Warns of damage!

- ▶ Failure to observe these instructions may result in damage to the device or the system.



Indicates important additional information, tips and recommendations.




Refers to information in these operating instructions or in other documentation.

→ Highlights a procedure which you must carry out.

## 2 INTENDED USE

Improper use of the Type 6013 device may be dangerous to people, nearby equipment and the environment.

- ▶ The device solely serves as a solenoid valve for the media permitted as per the data sheet, and for use in Group II Category 2 G (Zones 1 and 2), temperature class T4 or T6, or 2 D (Zones 21 and 22), temperature 130 °C (see information on the  approval label).
- ▶ The device may only be used for the applications specified in chapters “5 Operational conditions of the devices” and in connection with the external devices and components recommended and permitted by Bürkert.
- ▶ The degree of protection applied is the intrinsic safety (Ex ia) for solenoids with cable connection or flat connector port via cable plug.
- ▶ Prerequisites for safe and trouble-free operation of the system are proper transport, storage and installation as well as careful operation and maintenance. Any other or additional use is not considered part of the **intended use**. Bürkert will not be liable for any damage resulting from this. The user alone bears the risk.
- ▶ Only use the device as intended.

### 2.1 Restrictions

If exporting the system/device, observe any existing restrictions.

### 2.2 Explosion protection approval

The explosion protection approval is only valid if you use the modules and components authorised by Bürkert as described in these operating instructions.

The device may only be used in combination with additional components released by Bürkert, otherwise the explosion protection approval is void.

In the event of unauthorised changes to the device, modules or components, the explosion protection approval is also void.

The following EC-type examination certificates and IECEx certificates have been issued by Bureau Veritas:

EPS 18 ATEX 1088 X/IECEx EPS 18.0038

Production will be audited by:

CE 102 PTB (Physikalisch-Technische Bundesanstalt – German Federal Metrology Institute)

Bundesallee 100 38116 Braunschweig

### 3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not take account of any

- contingencies or events which may occur during installation, operation and maintenance of the devices.
- local safety regulations that are within the operator's scope of responsibility, including those relating to the installation personnel.



#### Risk of explosion!

- ▶ The device is a closed system that cannot be modified.

A device already used in a non Ex-"i" circuit can no longer be used in the Ex-"i" circuit, as the safety thereof cannot be guaranteed.

- ▶ Only use the device in an Ex-"i" circuit.
- ▶ Devices used in a non Ex-"i" circuit must, after removal, be labelled in a manner that prohibits usage in an Ex-"i" circuit.

#### Danger from high pressure!

Interventions in the system pose an acute risk of injury.

- ▶ Before loosening lines and valves, turn off the pressure and vent the lines!
- ▶ Note the flow direction when installing.
- ▶ Observe the applicable accident prevention and safety regulations for pressurised devices.



#### Risk of explosion due to electrostatic charge!

If there is a sudden discharge of electrostatically charged devices or persons, there is a risk of explosion in the Ex area.

- ▶ Use suitable measures to ensure that electrostatic charges cannot occur in the potentially explosive atmosphere.
- ▶ Clean the device surface by gently wiping it with a damp or anti-static cloth only.

#### General hazardous situations.

To prevent injuries, ensure that:

- ▶ The system cannot be activated unintentionally.
- ▶ Installation and maintenance may be performed by authorised technicians only and with the appropriate tools.
- ▶ The process must be restarted in a defined or controlled manner after an interruption in the power supply or pneumatic supply.
- ▶ Device may be operated only when in perfect condition and in consideration of the operating instructions.
- ▶ The general rules of technology must be followed for application planning and operation of the device.



Non-observance of these operating instructions and the information contained therein and unauthorised tampering with the device will release us from any liability and also invalidate the warranty covering devices and components!

## 4 GENERAL NOTES

### 4.1 Contact address

#### Germany

Bürkert Fluid Control Systems  
 Sales Centre  
 Christian-Bürkert-Str. 13–17  
 D-74653 Ingelfingen  
 Tel. + 49 (0) 7940 - 10 91 111  
 Fax + 49 (0) 7940 - 10 91 448  
 E-mail: info@burkert.com

#### International

The contact addresses can be found on the back pages of the printed operating instructions.

They are also available online at: [www.burkert.com](http://www.burkert.com)

### 4.2 Warranty

A precondition for the warranty is that the device is used as intended in consideration of the specified operating conditions.

### 4.3 Information online

Operating instructions and data sheets for Type 6013 can be found online at: [www.burkert.com](http://www.burkert.com)

## 5 OPERATIONAL CONDITIONS OF THE DEVICES

### 5.1 Usage in an Ex area



The device may be exposed to gas or dust in the Ex area, but not for a hybrid mixture.

### 5.2 Operate only with the appropriate valve

The solenoids may only be operated with a metal or plastic valve body with minimum dimensions of 32 mm x 32 mm x 10 mm. A larger valve body with better thermal conductivity may be installed at any time.

### 5.3 Single installation, block installation

- Type AC10 – 5 solenoids: suitable for single and block installation.
- Type AC10 – 6 solenoids: suitable for single installation.

#### NOTE!

For block installation, note:

- ▶ Dimensions of the valve body: 32 mm x 32 mm x 10 mm
- ▶ Material of the valve body: brass (MS), plastic (PA 6 GV), stainless steel

## 6 TECHNICAL DATA

### 6.1 Conformity

The Type AC10 solenoid complies with the EU Directives as per the EU Declaration of Conformity (if applicable).

### 6.2 Standards

The applied standards, which are used to demonstrate conformity with EU Directives, are listed in the EU-type examination certificate and/or the EU Declaration of Conformity (if applicable).

### 6.3 Operating conditions



#### WARNING!

#### Risk of explosion!

Exceedance of the technical data specified on the type label leads to a high risk!

- ▶ Never exceed the technical data specified on the type label.

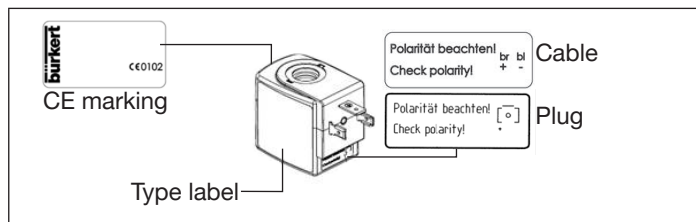


Fig. 1: Type label location

### 6.3.1 Type label

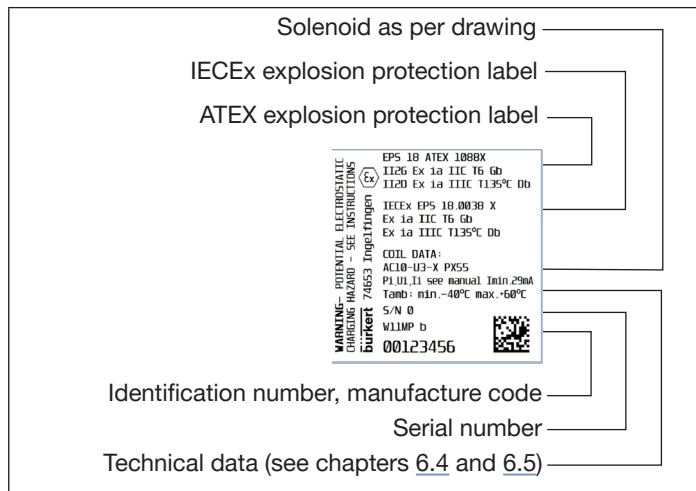


Fig. 2: Description of the type label



## 6.4 Use in areas at risk of gas explosions



The device may be exposed to gas or dust in the Ex area, but not for a hybrid mixture.

### 6.4.1 Electrical data

Electrical data for Ex "ia" and Gas Group II C type of protection:

Coil size	L x W x H [mm]	Weight [g]	Encryption	Structure	Temp. class
5	45 x 32 x 41	160	PX53	Diodes in the solenoid	T6
			PX52		T4
6	50 x 40 x 41	210	PX55	Diodes in the solenoid	T6
			PX54		T4

### 6.4.2 Safety-related data

	Type AC10-...-5-...	Type AC10-...-5-...		
	Type AC10-...-6-...	Single installation	Block installation	
Explosion group	IIC			
Category	ia			
Temperature class	T6	T4	T6	T4
Max. input voltage $U_i$	35 V	35 V	35 V	35 V
Max. input current $I_i$	0.9 A	0.9 A	0.9 A	0.9 A
Max. input power $P_i$	0.9 W	2.5 W	0.65 W	1.5 W
$L_i$ and $C_i$ are negligibly minor				



The maximum permitted voltages and respective short-circuit currents can be found for the respective gas group in table A1 in standard EN 60079-11.

### 6.4.3 Functional data

Two versions of the Type AC10 solenoids are available:

- Version for use with supply module 300  $\Omega$  (300  $\Omega$  barrier),
- version for use with other authorised supply modules (e.g. 8 x remote I/O from steel).

Version	Resistor R20 [ $\Omega$ ]	Minimum terminal voltage [V]	Minimum current [mA]	Differentiation parameter
Version for use with 300 $\Omega$ supply module	310	9	29	10
High-ohm version	481	11.1	23	11



The maximum voltage and current values are specified by the authorised electrical equipment.

### 6.4.4 Permitted ambient temperature

Installation	Temperature class	AC10 – 5	AC10 – 6
Single installation	T6	-40 – +60 °C	-40 – +60 °C
Block installation	T6	-40 – +60 °C	Not possible
Single installation	T4	-40 – +75 °C	-40 – +75 °C
Block installation	T4	-40 – +75 °C	Not possible

Degree of protection: For Ex "i" at least IP20 as per EN 60529 (DIN VDE 0470 Part 1)

### 6.5 Use in areas at risk of dust explosions



The device may be exposed to gas or dust in the Ex area, but not for a hybrid mixture.

### 6.5.1 Electrical data

Electrical data for Ex "ia" and Gas Group II C type of protection:

Coil size	L x W x H [mm]	Weight [g]	Encryption	Structure	Solenoid temp.*
5	45 x 32 x 41	160	PX53	Diodes in the solenoid	+135 °C
			PX52		
6	50 x 40 x 41	210	PX55	Diodes in the solenoid	
			PX54		

\* Max. surface temperature of the solenoid [T]

### 6.5.2 Safety-related data

	Type AC10-...-5-...	Type AC10-...-5-...
	Type AC10-...-6-...	Type AC10-...-5-...
	Single installation	Block installation
Explosion group	IIC	
Category	ia	
Max. surface temperature	T 135 °C	
Max. input voltage $U_i$	35 V	35 V
Max. input current $I_i$	0.9 A	0.9 A
Max. input power $P_i$	0.68 W	0.68 W
$L_i$ and $C_i$ are negligibly minor		

## 7 INSTALLATION

### 7.1 Safety instructions



#### DANGER!

##### Risk of explosion!

The device is a closed system. It must not be uninstalled.

The following safety instructions must be observed:

- ▶ The surface of the device may be electrostatically charged. In areas at risk of explosion, the surface of the devices may only be cleaned with a damp or anti-static cloth.
- ▶ Only designated cables and lines may be inserted.
- ▶ The operator must ensure appropriate cable relief.
- ▶ Note the maximum thermal strain of the inserted cables or lines.



#### DANGER!

##### Risk of explosion due to overheating!

The following valve data must be observed when installing the batteries:

- ▶ Valve body dimensions: 32 mm x 32 mm x 10 mm.
- ▶ Material of the valve body: brass (MS), plastic (PA 6 GV) or stainless steel (VA).



#### WARNING!

##### Danger from high pressure!

- ▶ Before loosening lines and valves, turn off the pressure and vent the lines!
- ▶ Note the flow direction when installing.
- ▶ Observe the applicable accident prevention and safety regulations for pressurised devices.

### 7.2 Example installation of coil for Type 6013




Any installation position.  
Ideally with solenoid actuator on top.

1. Clean pipelines.
2. Any installation position  
→ Preferably with actuator on top.
3. Attach dirt trap  
→ Note flow direction!
4. Seal  
→ PTFE.
5. Screw-in pipelines  
→ Note flow direction!
6. Installing/uninstalling.

## NOTE!

### Note on devices with connection cable:

Connection cable and solenoid are moulded. They must not be uninstalled!

 Always connect protective conductor!

7. Connect electrically.

## 7.3 Port connection

- PX52, PX53, PX54 and PX55: flat connector via cable plug as per DIN EN 175301-803, Form A
- In conjunction with JW\*\*: on moulded cable
- In conjunction with JA12: as version with clamp terminal box

## 8 START-UP

### 8.1 Safety instructions



#### WARNING!

#### Risk of injury due to improper operation!

Improper operation may result in injuries as well as damage to the device and the area around it.

- ▶ Before start-up, ensure that the operating personnel are aware of and have completely understood the contents of the operating instructions.
- ▶ The safety instructions and the intended use must be observed.
- ▶ Only adequately trained personnel may start up the system/device.

### 8.2 Start-up

Before start-up, ensure that:

- the device has been installed correctly,
- the connection has been properly executed,
- the device is not damaged,
- all screws have been tightened,
- cable bushing is installed in accordance with the operating instructions of the device.

## 9 MAINTENANCE, TROUBLESHOOTING

### 9.1 Safety instructions



#### WARNING!

Risk of injury due to improper maintenance, repair and upkeep!

- ▶ Only authorised technicians with the proper tools may perform maintenance and upkeep on the device!
- ▶ Only the manufacturer may repair the device!

### 9.2 Maintenance work

When operating under the conditions described in these instructions, the devices are maintenance-free.

### 9.3 Troubleshooting

In case of errors, ensure that:

- the device has been installed correctly,
- the connection has been properly executed,
- the device is not damaged,
- all screws have been tightened,
- voltage and pressure have been applied,
- the pipelines are clear.

## 10 TRANSPORT, STORAGE, PACKAGING

### NOTE!

#### Transport damage!

Inadequately protected devices may be damaged during transport.

- Protect the device against moisture and dirt in shock-resistant packaging during transport.
- Avoid exceeding or dropping below the permitted storage temperature.

#### Incorrect storage may damage the device.

- Store the device in a dry and dust-free location!
- Storage temperature  $-40...+55$  °C.

#### Damage to the environment caused by device parts contaminated with media.

- Dispose of the device and packaging in an environmentally friendly manner!
- Observe applicable disposal and environmental regulations.





[www.burkert.com](http://www.burkert.com)