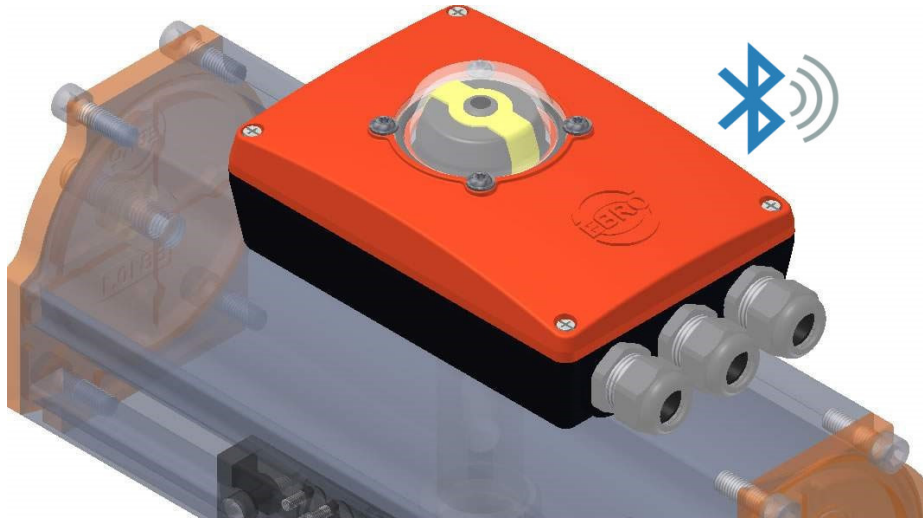


OM Ex-XXXX-XXXX-Advanced

Supplementary ATEX operating instructions



Explosion Protection Directive 2014/34/EU

Product: Ex-XXXX-XXXX-Advanced

Area of use:	Group II Device category 2D	
Usable in zones	21 and 22	Dusts

These instructions, which are supplementary to the standard operating instructions, are intended to support and instruct the user of the switch box type Ex-XXXX-XXXX-Advanced in operation and maintenance in a hazardous environment.

In accordance with directive 2014/34/EU, Annex VIII of the European Parliament and of the Council of 26 February 2014.


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1. General information

The supplementary ATEX operating instructions provide additional information on the use of the Ex-XXXX-XXXX-Advanced in a potentially explosive environment.

Before commissioning, read these operating instructions and the original SBU Advanced assembly and operating instructions attentively and follow all the instructions.

Compliance with the Operational Safety Ordinance as well as explosion protection and occupational health and safety are the operating company's responsibility.

The explosion protection and occupational health and safety regulations must be observed.

2. Explanation of symbols

The hazard symbols are found next to the safety instructions that indicates particular hazards for persons or material assets. They are uniformly structured in these operating instructions and must be observed without fail.



General hazard



High voltage



Hand injuries



Explosion

Signal word	Meaning
DANGER	Indicates a directly threatening hazard that will lead to very serious personal injuries or even death if the instruction given is not followed precisely.
WARNING	Indicates a possibly hazardous situation that could lead to very serious personal injuries or even death if the instruction given is not followed precisely.
CAUTION	Indicates a possibly hazardous situation or unsafe, hazardous procedures that could lead to personal injuries or damage to the Ex-XXXX-XXXX-Advanced or its surroundings.

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Observe the respectively mentioned safety instructions and be particularly careful in these cases! Also pass on all safety instructions to other users!

In addition to the notes in these operating instructions, the generally applicable safety and accident prevention regulations must be observed!

You will find the information symbols next to circumstances or activities that ensure the safe, proper and efficient handling of the Ex-XXXX-XXXX-Advanced if observed. They are all uniformly structured in these operating instructions and must be observed.



Protective gloves



Eye protection

Explosion Protection Directive 2014/34/EU

Symbol

Meaning



This symbol indicates that electrical components and the Ex-XXXX-XXXX-Advanced must be switched off and secured against being switched on again before service and maintenance.



This symbol indicates special circumstances that ensure the safe, proper and efficient handling of the Ex-XXXX-XXXX-Advanced if observed. All information should be followed in the interests of use of the Ex-XXXX-XXXX-Advanced as intended. Also pass on all safety instructions to other users!



Work and/or operation steps are marked by the bullet point. The steps must be performed in the order given from top to bottom!



Components and their installation location inside the Ex-XXXX-XXXX-Advanced are marked by the rectangular and round key and a letter. Note that the letters are issued again for each new chapter and always begin with A.

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Information and symbols attached directly to the Ex-XXXX-XXXX-Advanced such as warning signs, actuation signs, direction of rotation arrows, component markings, etc. must be observed without fail.

Information and symbols attached directly to the Ex-XXXX-XXXX-Advanced must not be removed and are to be maintained in a fully legible state!

3. Use for the intended purpose

The Ex-XXXX-XXXX-Advanced serves to acquire the signals for the 0°/90° or closed/open position detection of a valve. The Ex-XXXX-XXXX-Advanced is mounted on a pneumatic quarter turn actuator with a VDE/VDI 3845 AA2 interface. Quarter turn actuators not having these interfaces require an additional attachment kit for adaptation. The Ex-XXXX-XXXX-Advanced can also optionally be used remotely on linear actuators. The additional interface for two 24 V DC proximity switches allows the two end position sensors of the linear actuator to be electrically connected there and their signals processed by the microprocessor-assisted Ex-XXXX-XXXX-Advanced.

The Ex-XXXX-XXXX-Advanced is suitable for potentially explosive areas and may be operated exclusively in Ex-zones 21/22.

The further conditions of use are described in more detail in the chapter *Usage in a hazardous environment*.

The Ex-XXXX-XXXX-Advanced may only be put into operation after the following documents have been read:

- <Explanation of the EU directives>
- Original assembly and operating instructions
- These supplementary ATEX assembly/operating instructions



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DANGER

Danger due to use of the Ex-XXXX-XXXX-Advanced other than for the intended purpose



People can be seriously injured if the Ex-XXXX-XXXX-Advanced is used improperly or for a purpose other than that intended. Also, the Ex-XXXX-XXXX-Advanced may sustain damage.

Use the Ex-XXXX-XXXX-Advanced only for its intended purpose!

Do not modify to the Ex-XXXX-XXXX-Advanced!

INFO



Be sure to observe all the information in these operating instructions, in particular the safety instructions. It must be read and observed before all activities on the Ex-XXXX-XXXX-Advanced.

Any use, adjustment and variation other than that described in these operating instructions is considered to be improper and contrary to the intended purpose of the Ex-XXXX-XXXX-Advanced!

DANGER



Deadly danger through disregarding the regulations in the potentially explosive area.

Very serious injuries or death due to explosion or fire.

When assembling and operating the Ex-XXXX-XXXX-Advanced, care must be taken that the applicable regulations, directives, etc. are complied with and observed so that ignition hazards cannot arise as a consequence of electrostatic charging.

This EBRO Ex-XXXX-XXXX-Advanced, which

- a) will be installed as a complete functional unit in a complete system
 - directly on a pneumatic quarter turn actuator with the attached interface according to VDI/VDE 3845 AA2 80 mm x 30 mm and 30 mm (max. dia. 30 mm) shaft height,
- b) should normally detect the 0° (closed) and 90° (open) positions.





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- c) The microcontroller-assisted switch box has the following interfaces:
- Terminal point for a 24 V DC solenoid valve
 - Optional terminal point for two external sensors
 - Terminal point for the closed/open feedback signals
 - Terminal point for a collective error
 - Bluetooth 4.0 LE interface for the visualisation of the operating status and possible setting options
- d) as a "device" within the meaning of the ATEX meets the requirements of the directive 2014/34/EU, is then optionally equipped in all mechanical and electrical subassemblies in a special version so that it is
→ explosion-proof for all surrounding zones
and does not represent an ignition hazard for the following classification according to the ATEX directive 1999/92/EC: Zone 21 and Zone 22.

The safety instructions in the assembly/operating instructions for the SBU Advanced in sections B1 and C1 must be observed when assembling and operating the Ex-XXXX-XXXX-Advanced.

Explosion Protection Directive 2014/34/EU

 - Operation	<p>Safety instructions for operation in a potentially explosive environment:</p> <ul style="list-style-type: none">• The Ex-XXXX-XXXX-Advanced is suitable and marked for device category 2D.• When using in potentially explosive environments of zones 21 and 22, it is mandatory for the operating company to observe the instructions marked with -Operation.• Use in hybrid mixtures is not permissible.
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The Ex-XXXX-XXXX-Advanced may only be put into operation in potentially explosive environments after reading these supplementary ATEX operating instructions and the following additional documents:

- **Original assembly instructions and operating instructions for the SBU Advanced !**

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4. Safety instructions for use in potentially explosive areas

The safety instructions listed here for the use of the Ex-XXXX-XXXX-Advanced in potentially explosive areas must be observed by the operating company. Disregarding these instructions could lead to the risk of a fire or explosion.

It is compulsory for the operating company to observe in particular the safety instructions for potentially explosive areas as well as all other safety instructions.

EBRO ARMATUREN Gebr. Bröer GmbH supplies an Ex-XXXX-XXXX-Advanced in which all components and materials used conform to the requirements stipulated in the listed directives. In addition, the safety instructions for the pneumatic quarter turn actuator on which it is mounted also apply to Ex-XXXX-XXXX-Advanced.

The company that operates the Ex-XXXX-XXXX-Advanced is responsible for installing, connecting and using the Ex-XXXX-XXXX-Advanced properly within the limits of the specifications of the original assembly/ operating instructions and these supplementary operating instructions.

This is not the responsibility of the manufacturer of the Ex-XXXX-XXXX-Advanced.

Dust layers on the components of the Ex-XXXX-XXXX-Advanced could impair the exchange of heat with the ambient air. This can lead to a build-up of heat. In order to avoid an impermissible temperature increase above the maximum permissible surface temperature, any deposits or dust layers must be removed.

DANGER



Deadly danger due to raised surface temperature in the potentially explosive area.

Very serious injuries or death due to explosion or fire.

Care must be taken when operating the Ex-XXXX-XXXX-Advanced that dust deposits do not lead to an increase in the surface temperature. Observe the technical data.

Remove dust deposits from the Ex-XXXX-XXXX-Advanced!

The maximum permissible dust layer thickness is 5 mm.



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When assembling the Ex-XXXX-XXXX-Advanced, care must be taken that it is earthed so that electrostatic charging cannot occur and lead to explosion risk.

The maintenance and assembly work may only take place outside the danger areas of the explosion zone. This prevents an inadvertent discharge in conjunction with a hazardous atmosphere.

The operating company must ensure that the Ex-XXXX-XXXX-Advanced is earthed via a secure earth connection to a fixed earthing point. This particularly applies where insulating seals and screw connections made of non-conductive materials are used.

The bleeder resistance must be $< 10^6 \Omega$.

DANGER

Deadly danger due to lack of earthing in the potentially explosive area.



Very serious injuries or death due to explosion or fire.

Care must be taken when assembling and operating the Ex-XXXX-XXXX-Advanced that the Ex-XXXX-XXXX-Advanced is earthed.

Earth the Ex-XXXX-XXXX-Advanced via a secure earth connection to a fixed earthing point!

The company that operates the Ex-XXXX-XXXX-Advanced is responsible for ensuring compliance with the relevant laws, ordinances and directives of the employer's liability insurance association concerning the avoidance of ignition hazards as a result of electrostatic charging with regard to earthing, securing of bleeder resistances, charging of persons, conductive shoes, floor, clothing, gloves, helmets, etc. If this is disregarded, touching the Ex-XXXX-XXXX-Advanced in conjunction with an explosive atmosphere could represent an explosion risk.

DANGER

Deadly danger through disregarding the regulations in the potentially explosive area.



Very serious injuries or death due to explosion or fire.

When assembling and operating the Ex-XXXX-XXXX-Advanced, care must be taken that the applicable regulations, directives, etc. are complied with and observed so that ignition hazards cannot arise as a consequence of electrostatic charging.

Observe the user's regulations and directives!

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Supplementary ATEX operating instructions

4.1 Safety instructions for electrical installations in potentially explosive areas

The requirements stipulated in EN 60079-14 are to be observed.

The applicable national ordinances and regulations are to be observed when installing and operating the explosion-proof Ex-XXXX-XXXX-Advanced.

Work on the Ex-XXXX-XXXX-Advanced and electrical equipment when live is generally forbidden in the potentially explosive areas, except for work on intrinsically safe circuits. In special cases work may be carried out on non-intrinsically safe circuits; however it must be ensured that no explosive atmosphere is present during this work.

Freedom from voltage may only be tested with explosion-proof, approved measuring devices. Earthing may only be carried out when there is no explosion risk at the earthing point. Otherwise, the safety instructions for electrical work must be observed.

Explosion Protection Directive 2014/34/EU

DANGER

Danger to life due to high voltage.

Very serious injuries or death due to electrocution.



The Ex-XXXX-XXXX-Advanced may only be connected by a qualified electrician.

Switch the Ex-XXXX-XXXX-Advanced off and secure it against being switched on again.

WARNING

Operational malfunction due to electrostatic charging.

Malfunctions of, or damage to components.



The Ex-XXXX-XXXX-Advanced may only be connected by a qualified electrician.

The Ex-XXXX-XXXX-Advanced must be earthed.

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DANGER

Deadly danger due to lack of earthing in the potentially explosive area.



Very serious injuries or death due to explosion or fire.

Care must be taken when assembling and operating the Ex-XXXX-XXXX-Advanced that the Ex-XXXX-XXXX-Advanced and the pipework system are earthed.

Earth the Ex-XXXX-XXXX-Advanced and the pipework system via a secure earth connection to a fixed earthing point!

4.2 ATEX Directive 2014/34/EU - manufacturer

The requirements for the properties of installations and equipment that can be a source of ignition have been harmonised throughout Europe. The requirements are listed in the product directive 2014/34/EU. The directive describes the "fundamental health and safety requirements and the conformity evaluation procedure for electrical and non-electrical devices that can be used in potentially explosive areas".

The conformity evaluation procedure of the EU type test according to Annex III of the directive 2014/34/EU was successfully applied to the Ex-XXXX-XXXX-Advanced from Exepd GmbH and completed with the obtainment of the EU type test certificate.

Furthermore, the production control in accordance with 2014/34/EU is secured by

- Annex IV (quality assurance) or
- Annex V (product testing by a notified body)

prior to delivery of the Ex-XXXX-XXXX-Advanced.

The Ex-XXXX-XXXX-Advanced is marked in accordance with 2014/34/EU and a declaration of conformity is drawn up by the manufacturer and handed over to the operating company together with the technical documentation.



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4.3 ATEX Directive 1999/92/EC Ex-XXXX-XXXX-Advanced – operating company

The ATEX operating directive 1999/92/EC (also known as ATEX 118a or ATEX 137) describes the requirements for the operation of the Ex-XXXX-XXXX-Advanced in potentially explosive areas. The risk analysis (possible sources of ignition), the zone division, the creation of explosion protection documents and the responsible persons are described for the Ex-XXXX-XXXX-Advanced in the ATEX directive 1999/92/EC.

In the second step an authorised person in the explosion protection area must check whether the specifications contained in the explosion protection concept have been implemented and whether the electrical and non-electrical devices in use are suitable for the respectively defined zone.

These are all tasks of the company that operates the Ex-XXXX-XXXX-Advanced.

The operating company is also responsible for the correct evaluation and classification of the explosion zones in its works. Furthermore, following its classification of the zones, it must also select the electrical and non-electrical devices and systems that are approved for the zones.

The required device category is derived from the potentially explosive zone determined in which a device is to be used.

DANGER



Deadly danger through disregarding the regulations in the potentially explosive area.

Very serious injuries or death due to explosion or fire.

When assembling and operating the Ex-XXXX-XXXX-Advanced, care must be taken that the applicable regulations, directives, etc. are complied with and observed so that ignition hazards cannot arise as a consequence of electrostatic charging.

Observe the user's regulations and directives!



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4.4 Residual hazards

There may be residual hazards with regard to the explosion risk if the relevant regulations and rules are not applied. In particular the company that operates the Ex-XXXX-XXXX-Advanced is responsible here, as it bears the responsibility for the zone classification, the selection of the device category and usually also for the assembly.

DANGER



Deadly danger through disregarding the regulations in the potentially explosive area.

Very serious injuries or death due to explosion or fire.

When assembling and operating the Ex-XXXX-XXXX-Advanced, care must be taken that the applicable regulations, directives, etc. are complied with and observed so that ignition hazards cannot arise as a consequence of electrostatic charging.

Observe the user's regulations and directives!

5. Marking of the Ex-XXXX-XXXX-Advanced

Each Ex-XXXX-XXXX-Advanced has a type plate with EX marking:



The EX marking is placed on the type plate:

The surface temperature does not arise from the Ex-XXXX-XXXX-Advanced itself, but from the operating conditions (environment). The maximum surface temperature, specified as the temperature range **T85 °C**, may not be exceeded.


So that the Ex-XXXX-XXXX-Advanced remains identifiable, the type plate on the switch box housing must not be painted over or covered.



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Supplementary ATEX operating instructions

The type designation and article number must be quoted when enquiring to EBRO Sales or Service.


 Danger	Exceeding the maximum surface temperature specified on the type plate means danger during subsequent operation.
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6. Assembly, installation, disassembly

6.1 Mounting the Ex-XXXX-XXXX-Advanced

	<p><i>These instructions contain safety instructions for foreseeable risks when mounting the Ex-XXXX-XXXX-Advanced on a pneumatic quarter turn actuator.</i></p> <p>It is the responsibility of the operating company to supplement these instructions for other risks, especially those that are typically related to quarter turn actuators. Compliance with all requirements for this system is a prerequisite.</p>
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The connection of possibly included electrical auxiliary subassemblies is described in the documentation supplied. These documents apply in addition to these instructions and must be observed. Suitability for use in explosive environments is to be checked and assessed by the user prior to use.

 Operation	The Ex-XXXX-XXXX-Advanced is to be incorporated into the potential equalisation of the plant.
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6.2 Safety instructions for mounting and connection

 -Operation	<p>Additional safety instructions when installing in a potentially explosive environment:</p> <ul style="list-style-type: none">• It is assumed that the relevant occupational health and safety guidelines will be observed by the technical personnel when installing and commissioning (see assembly and operating instructions for SBU Advanced, chapter B1).• It must be ensured that the Ex-XXXX-XXXX-Advanced is permanently earthed in accordance with the local regulations.• It must be ensured that the ambient temperature is limited to $\leq 60\text{ °C}$.• The switch box housing is made of light metal: In order to avoid ignition sparks when installing in a potentially explosive environment, it is vital that impacts and blows to the housing – in particular with oxidised steel tools – are avoided.• Impact energy on housing 7 Nm Plastic cap 4 Nm• There must be no strong charge-generating processes.
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6.3 Test run: Test steps to complete the mounting and connection

	<p>Additional safety instructions when carrying out a test run in a potentially explosive environment:</p> <ul style="list-style-type: none">• It must be checked and ensured that the Ex-XXXX-XXXX-Advanced is earthed in accordance with the regulations.• It must be checked and ensured that the Ex-XXXX-XXXX-Advanced and every connected electrical auxiliary subassembly has the necessary -protection and is marked accordingly.
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6.4 Additional information: Dismounting the Ex-XXXX-XXXX-Advanced

	<p>Additional safety instructions when dismounting in a potentially explosive environment:</p> <ul style="list-style-type: none">• Switch off all energy carriers!• Reduce the explosive atmosphere.• The switch box housing is made of light metal: In order to avoid ignition sparks when dismounting in a potentially explosive environment, it is vital that impacts and blows to the housing – in particular with oxidised steel tools – are avoided.• Impact energy on housing 7 Nm Plastic cap 4 Nm• The use of suitable tools made of austenitic steel is urgently recommended.• There must be no strong charge-generating processes.
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Supplementary ATEX operating instructions

6.5 Safety instructions for the operation

	<ul style="list-style-type: none">• The function of an Ex-XXXX-XXXX-Advanced mounted on a pneumatic actuator must correspond to the <Use for the intended purpose>.• The conditions of use must match the marking on the type plate of the Ex-XXXX-XXXX-Advanced.• The Ex-XXXX-XXXX-Advanced must be operated exclusively within the atmospheric conditions (see "Use for the intended purpose").• All work on the Ex-XXXX-XXXX-Advanced must be performed only by technical personnel. Technical personnel within the meaning of these instructions are persons who, on account of their training, technical knowledge and professional experience, can correctly judge and carry out the work they have been given and can recognise and eliminate possible hazards.
	<p>The commissioning and operation of an Ex-XXXX-XXXX-Advanced mounted on a quarter turn actuator is only permitted as long as it is in the assembled and operational state – any other operation means an explosion risk and is exclusively the responsibility of the operating company.</p>

6.6 Use in an -endangered environment

Before and during operation in potentially explosive environments of zone 21 or 22 according to ATEX, the user must observe the following instructions and must have taken the following actions:

- The additional safety instructions for operation in potentially explosive environments of the aforementioned zones.
- The warning notices must be observed when installing.
- It must be ensured that the ambient temperature does not fall below -20 °C or exceed +60 °C.

If necessary, the customer must take appropriate measures for thermal insulation or screening against overheating and direct sunlight. In case of thermal insulation, the dissipation of electrostatic charges from the Ex-XXXX-XXXX-Advanced must be ensured by means of earthing.

- When using in potentially explosive areas, dust layers thicker than 1 mm must be removed immediately.

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7. Service and maintenance in a potentially explosive environment


The Ex-XXXX-XXXX-Advanced requires the following maintenance when operated in potentially explosive environments. An inspection must be carried out at least twice annually to ensure that the Ex-XXXX-XXXX-Advanced is still permanently earthed and not covered by a dust layer.

8. Troubleshooting


The safety instructions in the standard operating instructions must be observed when troubleshooting.

Repairs may only be carried out by trained personnel.


The tools used must comply with the relevant regulations and must be in perfect condition.

 - Operation	Additional safety instructions when working in a potentially explosive environment:
	The switch box housing is made of light metal: In order to avoid ignition sparks when dismounting in a potentially explosive environment, it is vital that impacts and blows to the housing – in particular with oxidised steel tools – are avoided. The use of tools made of austenitic steel is urgently recommended. Original spare parts must be used.

9. Solenoid coil connection

 - Operation	Additional safety instructions when using in a potentially explosive environment:
	The solenoid valve or solenoid coil must be suitable for the Ex zone. The use of intrinsically safe (Ex i) valves is not permitted.

10. External sensors

 - Operation	Additional safety instructions when using in a potentially explosive environment:
	The external sensors must be suitable for the Ex zone.

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11. Further information

Instructions, data sheets, declarations of conformity and further information can be obtained from www.ebro-armaturen.com in the Document Download area.

National and international contacts are at your disposal for further information. Please visit www.ebro-armaturen.com for details.

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