



## (1) EC-TYPE-EXAMINATION CERTIFICATE (Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

**PTB 01 ATEX 1024**



(4) Equipment: Control and distribution box, type 8146/5...-...

(5) Manufacturer: R. STAHL Schaltgeräte GmbH

(6) Address: Am Bahnhof 30, 74638 Waldenburg (Württ.), Germany

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report PTB Ex 01-11059.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 50014:1997 + A1 + A2**

**EN 50017:1998**

**EN 50018:1994**

**EN 50019:2000**

**EN 50020:1994**

**EN 50028:1987**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

(12) The marking of the equipment shall include the following:

**II 2 G EEx edmq ia/ib [ia/ib] T6, T5 or T4**

Zertifizierungsstelle Explosionsschutz

Braunschweig, Juli 24, 2001

By order:

Dr.-Ing. H. Wehinger  
Direktor und Professor



sheet 1/3

(13)

## SCHEDULE

(14)

### EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024

(15) Description of equipment

The control and distribution box, type 8146/5....-... comprises a polyester resin enclosure of type of protection Increased Safety "e". It is designed to accommodate control and switch gear as well as measuring instruments and terminals for intrinsically safe and non-intrinsically safe circuits, and it may be provided with actuator elements, pilot lamps and inspection windows as required. The box area intended for intrinsically safe circuits will be marked by a specific colour (e.g. light blue). Connection will be by means of explosion-proof cable entries.

All installed and attached components have been tested and certified under a separate test certificate.

#### Technical data

Rated voltage* .....	up to	1100 V
Rated current* .....	max.	630 A
Rated cross section* .....	max.	240 mm <sup>2</sup>

\*) depending on type of terminal and explosion-proof components used

Ambient temperature range                    -40 °C to +55 °C

The ratings specified are maximum values, actual values will be subject to the electrical equipment used from case to case. Depending on the system conditions, the mode of operation, the utilisation category, etc., the manufacturer will define the definitive ratings which will be within the range of these limiting values and will comply with the relevant standards.

The composition of the protection symbol will be based on the types of protection of the components actually used.

(16) Test report PTB Ex 01-11059

(17) Special conditions for safe use

None;

#### Notes for installation and use

Equipment of the type of protection Intrinsic Safety "i" shall be installed in such a way that the clearances and creepage distances between intrinsically safe and non-intrinsically safe circuits as set forth in 60079-14 are duly accounted for.

If the clearance requirements for the connectors as specified in EN 50020 cannot be safeguarded with the system installation and layout, wiring that meets the quality criteria Increased Safety "e" shall be used, or the wiring shall be of the fail-safe type.

When using more than one intrinsically safe circuit, the rules and regulations for interconnection shall duly be observed.

The actual ambient temperature range will be based on the admissible temperature range of the components used.

This EC type-examination certificate as well as any future supplements thereto shall at the same time be regarded as supplements to Certificate of Conformity PTB No. Ex-95.D.3155.

(18) Essential health and safety requirements

The tests and the favourable results these have produced reveal that the control and distributor box of type 8146/5...-... meets the requirements of directive 94/9/EC as well as those of the standards quoted on the cover sheet.

Zertifizierungsstelle Explosionsschutz

Braunschweig, Juli 24, 2001

By order:

Dr.-Ing. H. Wehinger  
Direktor und Professor




## 1. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024

(Translation)

Equipment: Control and distribution box, type 8146/5...-...

Marking:  II 2 G EEx edmq ia/ib [ia/ib] T6, T5 or T4

Manufacturer: R. STAHL Schaltgeräte GmbH

Address: Am Bahnhof 30  
74638 Waldenburg (Württ.), Germany

### Description of supplements and modifications

The marking of the control and distribution box, type 8146/5...-... is supplemented by the specification of the gas group.

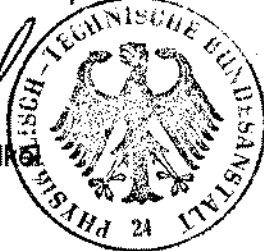
Therefore the marking is changed into:

 II 2 G EEx edmq ia/ib [ia/ib] IIA, IIB resp. IIC T6, T5 or T4

Zertifizierungsstelle Explosionsschutz

By order:

  
Dipl.-Phys. U. Völkel



Braunschweig, March 20, 2003

## 2nd SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024

(Translation)

Equipment: Control and distributor box, type 8146/5...-...

Marking:  II 2 G EEx edmq ia/ib [ia/ib] IIA, IIB, IIC T6, T5 and T4

Manufacturer: R. STAHL Schaltgeräte GmbH

Address: Am Bahnhof 30, 74638 Waldenburg (Württ.), Germany

### Description of supplements and modifications

The control and distributor box, type 8146/5...-..., may also be employed in areas in which a potentially explosive atmosphere as a mixture of dust and air can occasionally form.

It has been re-inspected on the basis of Standards EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-11, and EN 60079-18.

The marking will thus change to:

 II 2 G Ex de ia/ib [ia/ib] mq IIA, IIB, IIC T6, T5, T4

 II 2 D Ex tD A21 IP6X T 80 °C, T 95 °C, T 130 °C

### Technical data

Rated voltage:\* ..... up to 1100 V  
Rated current:\* ..... max. 630 A  
Conductor cross section:\* ..... max. 240 mm<sup>2</sup>

\*) depending on type of terminal and Ex components used

Ambient temperature range: ..... -40 °C to +55 °C

Protection against el. shock, foreign objects

and water: ..... min. IP65 in accordance with EN 60529

Rated values are maximum values, the actual electrical values are determined by mounted electrical apparatus. Within these limiting values complying with the appropriate standards the manufacturer specifies the final limiting values dependent on power supply specifications, operating mode, utilization category, etc.

The composition of the protection symbol is based on the types of protection of the components actually used.

# Physikalisch-Technische Bundesanstalt



Braunschweig und Berlin

2nd SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024

## Applied standards

EN 60079-0:2006	EN 60079-1:2004	EN 60079-7:2003	EN 60079-11:2007
EN 60079-18:2004	EN 61241-0:2006	EN 61241-1:2004	

Test report: PTB Ex 07-17134

Zertifizierungsstelle Explosionsschutz  
By order:

Braunschweig, October 17, 2007

  
Dr.-Ing. M. Thedens  
Oberregierungsrat





## 3rd SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024

(Translation)

Equipment: Control and distribution box, type 8146/5\*\*\*-\*\*

Marking:  II 2 G Ex de ia/ib [ia/ib] mq IIA, IIB, IIC T6, T5, T4  
 II 2 D Ex tD A21 IP6X T80 °C, T95 °C, T130 °C

Manufacturer: R. STAHL Schaltgeräte GmbH

Address: Am Bahnhof 30, 74638 Waldenburg (Württ.), Germany

### Description of supplements and modifications

The 8146/5\*\*\*-\*\* control and distribution box is modified in the following respects:

- 1) The ambient temperature is extended to a range of -60 °C to +100 °C.
- 2) The control and distribution box has been re-examined on the basis of standards EN 60079-0:2009, EN 60079-1:2007, EN 60079-5:2007, EN 60079-7:2007, EN 60079-11:2007, EN 60079-18:2009 und EN 60079-31:2009.

The marking therefore changes to:

 II 2 G Ex d e ia ib [ia Ga] mb q IIA, IIB, IIC T6, T5, T4 Gb

or

 II 2 G Ex db eb ia ib [ia] mb qb IIA, IIB, IIC T6, T5, T4

 II 2 D Ex tb IIIA, IIIB, IIIC T80 °C, T95 °C, T130 °C Db IP66

or

 II 2 D Ex tb IIIA, IIIB, IIIC T80 °C, T95 °C, T130 °C IP66

## Technical data

Rated voltage*	max. 1100 V
Rated current*	max. 630 A
Conductor size*	max. 240 mm <sup>2</sup>
*) subject to the type of terminal and 'Ex' components actually used	
Ambient temperature range	-60 °C to +100 °C
Protection against solid foreign objects, water and contact	IP 66 in accordance with EN 60529

Rated values are maximum values, the actual electrical values are determined by mounted electrical apparatus. Within these limiting values complying with the appropriate standards the manufacturer specifies the final limiting values dependent on power supply specifications, operating mode, utilisation category, etc.

The composition of the protection symbol depends on the types of protection of the components actually used.

The actual ambient temperature range depends on the temperature range permitted for the components that are used from case to case.

## Notes for manufacturing and operation

Equipment of Intrinsic Safety "i" type of protection shall be installed so that the clearances and creepage distances between intrinsically safe and non-intrinsically safe circuits, which are specified in EN 60079-14 are maintained.

When connecting more than one intrinsically safe circuit, the rules and regulations for interconnection must be observed.

The specified protection can be ensured only, if the information and instructions provided by the manufacturer are followed and the components are properly installed in the enclosure, the enclosure cover respectively the electrical equipment.

When installing the components in the electrical equipment, measures shall be taken to ensure that the temperatures at the place of installation remain within the range of working temperatures.

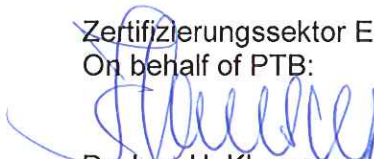
## Applied standards

EN 60079-0:2009, EN 60079-1:2007, EN 60079-5:2007, EN 60079-7:2007,  
EN 60079-11:2007, EN 60079-18:2009, EN 60079-31:2009

Test report: PTB Ex 12-11140

Zertifizierungssektor Explosionsschutz  
On behalf of PTB:

Braunschweig, March 12, 2012

  
Dr.-Ing. U. Klausmeyer  
Direktor und Professor



Sheet 2/2

EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.



**4th SUPPLEMENT**  
according to Directive 94/9/EC Annex III.6  
**to EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024**  
**(Translation)**

Equipment: Control and distribution panel, type 8146/5\*\*\*-\*\*

Marking:  **II 2 G Ex d e ia ib [ia Ga] mb q IIA, IIB, IIC T6, T5, T4 Gb**

or

 **II 2 G Ex db eb ia ib [ia] mb qb IIA, IIB, IIC T6, T5, T4**

 **II 2 D Ex tb IIIA, IIIB, IIIC T80 °C, T95 °C, T130 °C Db IP66**

or

 **II 2 D Ex tb IIIA, IIIB, IIIC T80 °C, T95 °C, T130 °C IP66**

Manufacturer: R. STAHL Schaltgeräte GmbH

Address: Am Bahnhof 30, 74638 Waldenburg, Germany

Description of supplements and modifications

The 8146/5\*\*\*-\*\* control and distribution panel is modified in the following respects:

- 1) Additional Ex components have been added to the list of components.
- 2) The following customised types have been added: "8146/5-C\*\*\*; /5-E\*\*\*; /5-K\*\*\*; /5-V\*\*\*\*"
- 3) Temperature class T3 is added.
- 4) The marking has been changed, because the "op is" and "op pr" types of protection have been added. The marking is now:

 **II 2 G Ex db e ia ib [ia Ga] mb op pr op is q IIA, IIB, IIC T6, T5, T4, T3 Gb**

 **II 2 D Ex tb IIIA, IIIB, IIIC T80 °C, T95 °C, T130 °C Db**

4th SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024

**Nomenclature:**

General type code

8146	/	5	*	*	*	-	*	*
a	/	b	c	d	-	e		

a	Type / series		
b	Design	5	= Control and distribution panel Ex e...
c	Enclosure dimensions; length x width [mm]:	00	= Combination
		03	= 112.5 x 112.5
		04	= 170. 0 x 112.5
		24	= 227.0 x 112.5
		05	= 170.0 x 170.0
		06	= 227.0 x 170.0
		07	= 340.5 x 170.0
		B7	= 340.5 x 170.0
		S7	= 340.5 x 170.0
		08	= 340.5 x 340.5
		09	= 681.5 x 340.5
d	Enclosure dimensions; height [mm]:	0	= Combination
		1	= 91
		2	= 131
		3	= 150
		4	= 171
		5	= 190
		6	= 230
e	Additional variants without reference to explosion protection		

4th SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024

Series type code

8146	/	*
a	/	b

a Type / series

b Design

5-C***	= customised series-produced product
5-E***	= modular construction (enclosure combination)
5-K***	= configured control panel
5-V***	= series-produced product, e.g. 5-V11 = load and motor switches 5-V37 = safety switch 5-V* = other

**Technical data**

Rated voltage*	up to 1100 V
Rated current *	max. 630 A
Rated cross section *	max. 300 mm <sup>2</sup>

\*) subject to the type of terminal and Ex components that are actually used

Ambient temperature  $-60\text{ °C} \leq T_{\text{amb}} \leq +100\text{ °C}$

The range of maximum ambient temperatures depends on the maximum ambient temperature, the power dissipation of the installed components and the temperature class.

Protection against contact,  
foreign bodies and water in accordance with EN 60529

Rated values are maximum values, the actual electrical values are determined by mounted electrical apparatus. Within these limiting values complying with the appropriate standards the manufacturer specifies the final limiting values dependent on power supply specifications, operating mode, utilisation category, etc. It is the manufacturer's responsibility to specify the characteristic values of the intrinsically safe circuits.

The maximum permissible ambient temperatures for the control and distribution box can be restricted by the maximum permissible ambient temperatures of the separately certified components.

The composition of the protection symbol depends on the types of protection of the components actually used.

## 4th SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024

### Notes for manufacturing and operation

Equipment of Intrinsic Safety “i” type of protection shall be installed, so the clearances and creepage distances between intrinsically safe and non-intrinsically safe circuits, which are specified in EN 60079-14 are complied with.

When connecting more than one intrinsically safe circuit, the rules and regulations for interconnection must be observed.

The control and distribution panel provided with a polyester-powder coat of paint must not be used in areas that are affected by high charge producing processes, mechanical friction and separation processes, electron emission (e.g. near electrostatic coating equipment), and pneumatically conveyed dust.

The specified protection can be ensured only, if the information and instructions provided by the manufacturer are followed and the components are properly installed in the enclosure, the enclosure cover and/or the electrical equipment.

When installing components in the electrical equipment, measures must be taken to ensure that the temperatures at the place of installation remain within the permissible range of working temperatures.

### Applied standards

EN 60079-0:2012    EN 60079-1:2014    EN 60079-5:2007    EN 60079-7:2007  
EN 60079-11:2012    EN 60079-18:2009    EN 60079-28:2007    EN 60079-31:2009

Test report:    PTB Ex 15-15022

Konformitätsbewertungsstelle, Sektor Explosionsschutz  
On behalf of PTB:

Braunschweig, February 25, 2015

  
Dr.-Ing. U. Klausmeyer  
Direktor und Professor

