

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**

2. **Certificate No:** FM16US0122X
3. **Equipment:** ISpac System Modules
(Type Reference and Name)

4. **Name of Listing Company:** R. STAHL Schaltgeraete GmbH

5. **Address of Listing Company:** Am Bahnhof 30
D-74638 Waldenburg (Wuertt)
Germany

6. The examination and test results are recorded in confidential report number:

3017145 dated 9th April 2004

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2011, FM Class 3610:2015, FM Class 3611:2004, FM Class 3810:2005,
ANSI/ISA 60079-0:2013, ANSI/ISA 60079-7:2008, ANSI/ISA 60079-11:2013, ANSI/ISA 60079-15:2009,
ANSI/ISA 60079-18:2012, ANSI/ISA 60079-28:2013, ANSI/ISA-TR 12.21.01:2004

For 9193/21-11-11, 9294/31-12 and 9194/50-01 (see standards listed below)

FM Class 3600:2022, FM Class 3611:2021, FM Class 3810:2021,
ANSI/ISA 60079-0:2020, ANSI/ISA 60079-7:2017, ANSI/ISA 60079-15:2013
ANSI/ISA No. 61010.1: 2012

8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems

13 January 2023

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

10. Equipment Ratings:

Group I: In type of protection Nonincendive with alternate Zone 2 markings.

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous (Classified) Locations. Class I, Zone 2, Group IIC Hazardous (Classified) Locations.

Group II: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and Intrinsically Safe output.

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous (Classified) Locations. Class I, Zone 2, non-sparking, protected contacts for Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings. Associated Apparatus with intrinsically safe connections for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G Hazardous (Classified) Locations when installed per manufacturer's control drawings. Class I, Zone 0, Associated Apparatus with intrinsically safe connections for Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings.

Group III: In type of protection Nonincendive and Non-Sparking for Zone 2 markings.

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous (Classified) Locations. Class I, Zone 2, non-sparking, protected contacts for Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings.

Group IV: In type of protection Nonincendive with alternate Zone 2 markings and Intrinsically Safe outputs.

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous (Classified) Locations. Class I, Zone 2, Group IIC Hazardous (Classified) Locations. Associated Apparatus with intrinsically safe connections for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G Hazardous (Classified) Locations when installed per manufacturer's control drawings. Class I, Zone 0, Associated Apparatus with intrinsically safe connections for Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings.

Group V: In type of protection Associated Apparatus with Intrinsically Safe outputs.

Associated Apparatus with intrinsically safe connections for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G Hazardous (Classified) Locations when installed per manufacturer's control drawings. Class I, Zone 0, Associated Apparatus with intrinsically safe connections for Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings.

Group VI: In type of protection Nonincendive and Increased Safety, Encapsulation and Intrinsic Safety with Intrinsically Safe and Ex op is outputs.

Increased safety, encapsulated, intrinsically safe and fiber optical interfaces protected Ex op is for use in Class I, Zone 1, Group IIC with intrinsically safe outputs for connections to Class I, Zone 0, Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

Group VII: In type of protection Intrinsic Safety for Division 1 and Zone 0 with Intrinsically Safe outputs

Intrinsically Safe for Class I, II, III, Division 1, Groups A, B, C, D, E, F, and G Hazardous (classified) Locations in accordance with Intrinsically Safe connections to Class I, II, III, Division 1, Groups A, B, C, D, E, F, and G Hazardous (classified) Locations when installed per manufacturer's control drawings.
Intrinsically Safe for Class I, Zone 1, Group IIC Hazardous (classified) Locations in accordance with Intrinsically Safe connections to Class I, Zone 0, Group IIC Hazardous (classified) Locations when installed per manufacturer's control drawings.

Group VIII: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and Intrinsically Safe output.

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous (Classified) Locations. Class I, Zone 2, non-sparking, protected contacts for Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings. Associated Apparatus with intrinsically safe connections for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G Hazardous (Classified) Locations when installed per manufacturer's control drawings. Class I, Zone 1, Associated Apparatus with intrinsically safe connections for Group IIC Hazardous (Classified) Locations when installed per manufacture's control drawings.

Group VIII: In type of protection Nonincendive and Increased Safety for Zone 2 markings:

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous (Classified) Locations. Class I, Zone 2, Increased safety AEx ec for Group IIC Hazardous (Classified) Locations.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

11. The marking of the equipment shall include:

Group I: In type of protection Nonincendive with alternate Zone 2 markings, the equipment is labelled with the following marking(s).

Type 9146/**-**-6*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 9146 6 031 002 1

Type 9164/13-20-55

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4; SEE DOC. 91 646 01 31 1

Type 9167/**-**-5*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 676 02 31 1

Type 9170/**-**-6*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 706 03 31 1

Type 9182/**-**-6*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 826 02 31 1

Type 9191/20-00-50

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 916 01 31 1

Type 9192/**-**-** and Type 9196/**-**-**

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 926 01 31 1

Type 9193/*0-**-**

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 936 01 31 1

Type 9194/31-** and Type 9195/**-**-**

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 956 01 31 1

Group II: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and Intrinsically Safe output, the equipment is labelled with the following marking(s).

Type 9146/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 9146 6 031 001 1

Type 9147/**-**-**

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 9147 6 031 001 1

Type 9160/**-**-10 and Type 9163/**-**-10

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC. 91 606 01 31 1

Type 9160/**-**-1f (f= 1 or 3) and Type 9163/**-**-1f (f= 1 or 3)

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC. 91 606 01 31 1

Type 9162/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 9162 6 031 001 1

Type 9165/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 656 01 31 1

Type 9180/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 9180 6 031 001 1

Group III: In type of protection Nonincendive and Non-Sparking for Zone 2 markings, the equipment is labelled with the following marking(s).

Type 9160/**-**-6f, (f= 1 or 3)

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC IIC; T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC. 91 606 02 31 1

Type 9160/**-**-60

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA IIC; T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC. 91 606 02 31 1

Type 9162/**-**-6*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC IIC; T4 at Ta = 70°C; SEE DOC. 9162 6 031 002 1

Type 9165/**-**-6*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA IIC; T4 at Ta = 70°C; SEE DOC. 91 656 02 31 1

Type 9185/*2-**-**

CL I, DIV. 2, GP. A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC IIC; T4 at Ta = 70°C; SEE DOC. 91 856 01 31 1

Group IV: In type of protection Nonincendive with alternate Zone 2 markings and Intrinsically Safe outputs, the equipment is labelled with the following marking(s).

Type 9167/**-**-0*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 676 01 31 1

Type 9170/*0-*d-1* (d= 0, 1 or 4)

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 706 01 31 1

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

Type 9170/*1-*d-1* (d= 0, 1 or 4)

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 706 02 31 1

Type 9172/**-**-0*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 726 01 31 1

Type 9175/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC. 91 756 01 31 1

Type 9176/**-**-0*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC. 91 766 01 31 1

Type 9182/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 826 01 31 1

Group V: In type of protection Associated Apparatus with Intrinsically Safe outputs, the equipment is labelled with the following marking(s).

Type 9170/*0-*d-1* (d= 2 or 3) and Type 9170/*0-**-2*

AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 706 01 31 1

Type 9170/*1-*d-1* (d= 2 or 3) and Type 9170/*1-**-2*

AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 706 02 31 1

Group VI: In type of protection Nonincendive and Increased Safety, Encapsulation and Intrinsic Safety with Intrinsically Safe and Ex op is outputs, the equipment is labelled with the following marking(s).

Type 9186/12-11-1*

CL I, Zone 1, AEx/Ex e mb ib, GP IIC; CL I, DIV 2, GP A,B,C,D; T4 Ta=65°C; AIS CL I, Zone 0, [AEx/Ex ia, op is] IIC; CL I, II, III, DIV 1, GP A – G; SEE DOC. 9186 6 031 001 1

Group VII: In type of protection Intrinsic Safety for Division 1 and Zone 0 with Intrinsically Safe outputs, the equipment is labelled with the following marking(s).

Type 9164/13-20-08

IS FOR CL I,II,III, DIV 1, GP A-G, T4; CL I, ZONE 0, AEx/Ex ia IIC T4; WITH CONNECTIONS FOR CL I,II,III, DIV 1, GP A-G; CL I, ZONE 0, AEx/Ex [ia] IIC; SEE DOC. 91 646 01 31 1

Group VIII: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and
THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

Intrinsically Safe output, the equipment is labelled with the following marking(s).

Type 9185/*1-**-**

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 1, [AEx/Ex ib] IIC T4 at Ta = 70°C; SEE DOC. 91 856 01 31 1

Group VIII: In type of protection Nonincendive and Increased Safety, the equipment is labelled with the following marking(s).

Type 9193/21-11-11

CL I, DIV. 2, GP. A,B,C,D; CL I, ZONE 2, AEx/Ex ec nC IIC; T4 at Ta = 70°C; SEE DOC. 91 936 02 31 1

Type 9294/31-12

CL I, DIV. 2, GP. A,B,C,D; CL I, ZONE 2, AEx/Ex ec IIC; T4 at Ta = 70°C; SEE DOC. 91 956 01 31 1

Type 9194/50-01

CL I, DIV. 2, GP. A,B,C,D; CL I, ZONE 2, AEx/Ex ec IIC; T4 at Ta = 70°C; SEE DOC. 91 956 01 31 1

12. **Description of Equipment:**

General - The ISpac System is used for isolation between control equipment and field measuring devices. The product features basic units of the ISpac system used to interconnect between the individual isolators of the ISpac modules series to form a system. Digital communications options include HART and 4 to 20 mA current signal.

Construction - The ISpac System consists modules that can be mounted on a DIN rail or on pac-Carrier Model type 9195. The electronics housing is non-metallic and the ISpac System modules must be installed within a suitable enclosure for the ultimate application.

Ratings - The ISpac System modules operate at various DC and AC voltages. The modules are rated for use in an enlarged ambient temperature range. Refer to Control Drawings.

Group I: In type of protection Nonincendive with alternate Zone 2 markings.

9146/a0-1d-6f, Frequency Transmitter

a = Number of Channels: 1 or 2

d = Analog / Digital Output: 0, 1, 5 or 9

f = Contact Limits: 1 or 2

9164/13-20-55, mA-Isolating Repeater

9167/ab-11-50, Isolating Repeater Loop Powered

a = Number of Channels: 1 or 2

b = Output Signal: 1, 3 or 4

9170/a1-cd-6f, Switching Repeater

a = Number of Channels: 1 or 2

c = Input Stage: 1, 2, 3, 4, 5 or 6

d = Output Stage: 0, 1 or 4

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

f = Line Fault Detection: 0, 1, 2 or 3

9182/a0-5d-6f, Temperature Transmitter

a = Number of Channels: 1 or 2
d = Output: 0, 1, 3 or 9
f = Limit Contact and SIL Option: 1, 2, 3 or 4

9191/20-00-50, Termination Module

9192/32-10-10, HART-Multiplexer

9193/a0-11-1f, Supply Module

a = Power Inputs: 1 or 2
f = Error Message: 0 or 1

9194/31-cd, pac-Bus

cd = Grid Size: 17 or 22

9195/abc-def-ghij, pac-Carrier

ab = Slots: 08, 16, or 24, alternative a = numeral 1 to 9 for slots and b = numeral 1 or 2 for used channels per slot
c = Model: A, H, M, N, P, S or T
de = Any two digit alpha-numeric character representing the Manufacturer of the Automation system
f = Any one digit numeric character representing the Automation System
gh = Any two digit numeric character representing the type of I/O module
ij = Any one digit alpha-numeric character followed by any one digit numeric character representing the type of connector

9196/16H-def-ghi, Connecting Board

def = Any three digit alpha-numeric or numeric character that represents the Automation system
gh = Any two digit numeric character representing the type of I/O module
i = Any one digit alpha-numeric character representing the type of terminals

Group II: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and Intrinsically Safe output.

9146/a0-1d-1f, Frequency Transmitter

a = Number of Channels: 1 or 2
d = Analog / Digital Output: 0, 1, 5 or 9
f = Contact Limits: 1 or 2
Entity Parameters:
Voc = 10.5VDC, Isc = 23.4mA, Po = 61.4mW Ca = 2.41µF, La = 63mH

9147/a0-99-10, Vibration Transducer Supply Unit

a = Number of Channels: 1 or 2

Entity Parameters:

type	Voc [Vdc]	Isc [mA]	Po [mW]	La [mA]	Ca [nF]
9147/*0-99-10	26.3	88.3	579	2.2	97

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

9160/ab-cd-1f, Transmitter Supply Unit

- a = Number of Channels: 1 or 2
- b = Design: 1, 3, 4 or 9
- c = Input: 1 or 8
- d = Output: 0 or 1
- f = Line fault detection: 0, 1 or 3

<i>Max Entity Parameters</i>					
<i>Terminals</i>	<i>Voc</i>	<i>Isc</i>	<i>Po</i>	<i>Ca</i>	<i>La</i>
	(V)	(mA)	(mW)	(nF)	(mH)
12(+), 10(-)	27.0	87.9	574	90	2.3
13(+), 14(-)*	27.0	87.9	574	90	2.3
12(+), 10 (signal), 11(-)	27.0	88.3	574	90	2.3
13(+), 14 (signal), 15(-))*	27.0	88.3	574	90	2.3
10 (signal), 11(-)	4.1	≈0	≈0	100000	1000
14 (signal), 15(-)*	4.1	≈0	≈0	100000	1000

* = Only for Model type 9160/2b-cd-1f

9162/13-11-12, Transmitter Supply Unit with Limit values

Entity Parameters:

2-wire Transmitter (Pins 11, 12) ; Voc = 27VDC, Isc = 87.9mA, Po = 574mW, Ca = 90nF, La = 2.3mH,
3-wire Transmitter (Pins 10, 11, 12); Voc = 27VDC, Isc = 88.3mA, Po = 574mW, Ca = 90nF, La = 2.3mH,
Active Current Source (Pins 10, 11); Voc = 4.1VDC, Isc ≈ 0mA, Po ≈ 0mW, Ca = 100µF, La = 1H

9163/ab-cd-1f, Isolating Repeater Input

- a = Number of Channels: 1 or 2
- b = Design: 1, 3, 4 or 9
- c = Input: 1 or 8
- d = Output Signal: 0 or 1
- f = Special Function: 0, 1 or 3

Entity Parameter only for type 9163/**-1*-1*:

Terminals 10 (+), 11 (-) or 14 (+), 15 (-)*;
Vmax = 30 V, Imax = 150 mA, Pi = 1 W, Ci = 0 µF, Li = 0 mH
Voc = 0 V, Isc = 0 mA, Po = 0 mW, Ca = -, La -

* Only for Model type 9163/2b-1d-1f

Entity Parameter only for type 9163/**-8*-1*:

Terminals 10/12 (+), 11 (-) or 13/14 (+), 15 (-)*;
Vmax = 30 V, Imax = 150 mA, Pi = 1 W, Ci = 0 µF, Li = 0 mH
Voc = 4.1 V, Isc = 0 mA, Po = 0 mW, Ca = -, La -

* Only for Model type 9163/2b-8d-1f

9165/ab-11-1f, Isolating Repeater

- a = Number of Channels: 1 or 2
- b = Signal: 1 or 6
- f = Special Input: 0 or 1

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

Max Entity Parameters					
Terminals	Voc	Isc	Po	Ca	La
	(V)	(mA)	(mW)	(nF)	(mH)
10(+), 11(-)	25.6	96	605	103	1.9
14(+), 15(-)*	25.6	96	605	103	1.9

* = Only for Model type 9165/2b-11-1f

9180/ab-77-11, Resistance Isolator

a = Number of Channels: 1 or 2

b = Measuring Range: 0 or 1

Entity Parameters:

Voc = 6.5VDC, Isc = 16.5mA, Po = 27mW Ca = 25µF, La = 120mH

Group III: In type of protection Nonincendive and Non-Sparking for Zone 2 markings.

9160/ab-cd-6f, Transmitter Supply Unit

a = Number of Channels: 1 or 2

b = Design: 1, 3, or 9

c = Input: 1 or 8

d = Output: 0 or 1

f = Line fault detection: 0, 1 or 3

9162/13-11-64, Transmitter Supply Unit with Limit values

9165/ab-11-6f, Isolating Repeater

a = Number of Channels: 1 or 2

b = Signal: 1 or 6

f = Special Input: 0 or 1

9185/12-4d-10, Fieldbus Isolating Repeater

d = Functionality: 5 or 6

Group IV: In type of protection Nonincendive with alternate Zone 2 markings and Intrinsically Safe outputs.

9167/ab-11-00, Isolating Repeater Loop Powered

a = Number of Channels: 1 or 2

b = Output Signal: 1, 3 or 4

Max Entity Parameters								
Models	Terminals	Voc	Vt	Isc	It	Po	Ca	La
		(V)	(V)	(mA)	(mA)	(mW)	(µF)	(mH)
9167/a1-11-00	10 (+), 11 (-) or 14 (+), 15 (-)*	15.7	-	60.0	-	233	0.48 7	10
9167/a3-11-00	10 (+), 11 (-) or 14 (+), 15 (-)*	25.0	-	99	-	613	0.11	2.5

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

9167/a4-11-00	10 (+), 11 (-) or 14 (+), 15 (-)*	18.8	-	107	-	503	0.26 6	3
---------------	--------------------------------------	------	---	-----	---	-----	-----------	---

* Only for Model type 9167/2b-11-00

9170/a0-cd-11, Switching Repeater

a = Number of Channels: 1 or 2

c = Input Stage: 1, 2, 3, 4, or 5

d = Output Stage: 0, 1 or 4

<i>Max Entity Parameters</i>								
<i>Models</i>	<i>Terminals</i>	<i>Voc</i>	<i>Vt</i>	<i>Isc</i>	<i>It</i>	<i>Po</i>	<i>Ca</i>	<i>La</i>
		(V)	(V)	(mA)	(mA)	(mW)	(μ F)	(mH)
9170/a0-cd-11 c = 1, 3, 4, 5	10(+),11(-) or 14(+), 15(-)*	10.6	-	24	-	64	2.32	63
	10-14 (+), 11-15 (-)*	-	10.6	-	48	128	2.32	16
9170/a0-2d-11	10 (+),11(-) or 14(+), 15(-)*	10.6	-	1.1	-	2.9	2.32	1000
	10-14 (+), 11-15 (-)*	-	10.6	-	2.2	5.8	2.32	1000

* = Only for Model type 9170/20-cd-11

9170/a1-cd-1f, Switching Repeater

a = Number of Channels: 1 or 2

c = Input Stage: 1, 2, 3, 4, 5 or 6

d = Output Stage: 0, 1 or 4

f = Line Fault Detection: 0, 1, 2 or 3

<i>Max Entity Parameters</i>								
<i>Models</i>	<i>Terminals</i>	<i>Voc</i>	<i>Vt</i>	<i>Isc</i>	<i>It</i>	<i>Po</i>	<i>Ca</i>	<i>La</i>
		(V)	(V)	(mA)	(mA)	(mW)	(μ F)	(mH)
9170/a1-cd-1f c = 1, 3, 4, 5, 6	10(+),11(-) or 14(+), 15(-)*	9.6	-	10	-	24	3.6	350
	10-14 (+), 11-15 (-)*	-	9.6	-	20	48	3.6	90
9170/a1-2d-1f	10 (+),11(-) or 14(+), 15(-)*	9.6	-	0.61	-	1.5	3.6	1000
	10-14 (+), 11-15 (-)*	-	9.6	-	1.22	3	3.6	1000

* = Only for Model type 9170/21-cd-1f

9172/a0-11-00, IS Relay Module

a = Number of Channels: 1 or 2

Entity Parameter: Terminals 10 (+), 11 (-) or 14 (+), 15 (-)*;
 Vmax = 30 V, Imax = 150 mA, Pi = 1.3 W, Ci = 0 μ F, Li = 0 mH.
 Voc = 0 V, Isc = 0 mA, Po = 0 mW, Ca = - , La -
 * Only for Model type 9172/20-11-00

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

9172/a1-11-00, IS Relay Module

a = Number of Channels: 1 or 2

Models	Terminals	Vmax	I _{max}	P _i	C _i	L _i
9172/a1-11-00	10 (NO), 11 (C) 12 (NC) or 13 (NC) 14 (NO), 15 (C) *	125 Vac	4 A	-	0	0
		125 Vdc	0.25 A	-	0	0
		60 Vdc	0.3 A	-	0	0
		30 Vdc	4 A	-	0	0

* Only for Model type 9172/21-11-00

9172/a2-11-00, IS Relay Module

a = Number of Channels: 1 or 2

Entity Parameter: Terminals 10 (+), 11 (-) or 14 (+), 15 (-)*;
 V_{max} = 30 V, I_{max} = 150 mA, P_i = 1.3 W, C_i = 0 μF, L_i = 0 mH.
 V_{oc} = 0 V, I_{sc} = 0 mA, P_o = 0 mW, C_a = -, L_a -
 * Only for Model type 9172/22-11-00

Models	Terminals	Vmax	I _{max}	P _i	C _i	L _i
9172/a2-11-00	1 (NO), 2 (C) 3 (NC) or 4 (NC) 5 (NO), 6 (C) *	125 Vac	4 A	-	0	0
		125 Vdc	0.25 A	-	0	0
		60 Vdc	0.3 A	-	0	0
		30 Vdc	4 A	-	0	0

* Only for Model type 9172/22-11-00

9175/a0-1d-1f, Digital Output

a = Number of Channels: 1 or 2

d = Output: 2, 4 or 6

f = line fault option: 0, 1 or 2

<i>Max Entity Parameters for Division 1 and Zone 0 (ia)</i>								
Models	Terminals	V _{oc} (V)	V _t (V)	I _{sc} (mA)	I _t (mA)	P _o (mW)	C _a (μF)	L _a (mH)
9175/a0-12-1f	10(+),11(-) or 14(+), 15(-)*	11.3	-	75	-	210	1.79	6.3
	10-14 (+), 11-15 (-)*	-	11.3	-	150	420	1.79	1.5
9175/a0-14-1f	10 (+),11(-) or 14(+), 15(-)*	19.6	-	150	-	732	0.235	1.5
	10-14 (+), 11-15 (-)*	-	19.6	-	300	1464	0.235	0.3
9175/a0-16-1f	10 (+),11(-) or 14(+), 15(-)*	27.6	-	110	-	760	0.085	1.2

* = Only for Model type 9175/20-1d-1f

<i>Max Entity Parameters for Zone 1 (ib)</i>								
Models	Terminals	V _{oc}	V _t	I _{sc}	I _t	P _o	C _a	L _a

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

		(V)	(V)	(mA)	(mA)	(mW)	(μ F)	(mH)
9175/a0-14-1f	10 (+),11(-) or 14(+), 15(-)*	19.6	-	60	-	732	0.235	1.5
	10-14 (+), 11-15 (-)*	-	19.6	-	120	1464	0.235	0.3
9175/a0-16-1f	10 (+),11(-) or 14(+), 15(-)*	27.6	-	50	-	760	0.085	1.2

* = Only for Model type 9175/20-1d-1f

9175/20-16-1f, Digital Output

f = line fault option: 0, 1 or 2

When channel 1 and channel 2 are connected in parallel, the device may only be used for Group C-G / IIB.

<i>Max Entity Parameters for Division 1 and Zone 0 (ia)</i>								
Models	Terminals	Voc	Vt	Isc	It	Po	Ca	La
		(V)	(V)	(mA)	(mA)	(mW)	(μ F)	(mH)
9175/20-16-1f	10-14 (+), 11-15 (-)	-	27.6	-	220	1520	665	1.8

<i>Max Entity Parameters for Zone 1 (ib)</i>								
Models	Terminals	Voc	Vt	Isc	It	Po	Ca	La
		(V)	(V)	(mA)	(mA)	(mW)	(μ F)	(mH)
9175/20-16-1f	10-14 (+), 11-15 (-)	-	27.6	-	100	1520	665	1.8

Type 9176/a0-1d-00, Digital Output Loop Powered

a = Number of Channels: 1 or 2

d = Output Signal: 2, 4, 5, 6 or 7

<i>Max Entity Parameters for Division 1 and Zone 0 (ia)</i>								
Models	Terminals	Voc	Vt	Isc	It	Po	Ca	La
		(V)	(V)	(mA)	(mA)	(mW)	(μ F)	(mH)
9176/a0-12-00	10(+),11(-) or 14(+), 15(-)*	11.3	-	75	-	210	1.79	6.3
	10-14 (+), 11-15 (-)*	-	11.3	-	150	420	1.79	1.5
9176/a0-14-00	10(+),11(-) or 14(+), 15(-)*	19.6	-	150	-	732	0.235	1.5
	10-14 (+), 11-15 (-)*	-	19.6	-	300	1464	0.235	0.3
9176/a0-15-00	10(+),11(-) or 14(+), 15(-)*	27.6	-	86.5	-	596	0.085	1.8
9176/a0-16-00	10(+),11(-) or 14(+), 15(-)*	27.6	-	110	-	760	0.085	1.2
9176/a0-17-00	10(+),11(-) or 14(+), 15(-)*	27.6	-	60	-	415	0.085	6.6

* Only for Model type 9176/20-1d-00

<i>Max Entity Parameters for Zone 1 (ib)</i>								
--	--	--	--	--	--	--	--	--

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

Models	Terminals	Voc (V)	Vt (V)	Isc (mA)	It (mA)	Po (mW)	Ca (μ F)	La (mH)
9176/a0-14-00	10(+),11(-) or 14(+), 15(-)*	19.6	-	60	-	732	0.23 5	1.5
	10-14 (+), 11-15 (-)*	-	19.6	-	120	1464	0.23 5	0.3
9176/a0-15-00	10 (+),11(-) or 14(+), 15(-)*	27.6	-	44	-	596	0.08 5	1.8
9176/a0-16-00	10 (+),11(-) or 14(+), 15(-)*	27.6	-	50	-	760	0.08 5	1.2

* = Only for Model type 9176/20-1d-00

9176/20-1d-00, Digital Output Loop Powered

d = Output Signal: 5, 6 or 7

When channel 1 and channel 2 are connected in parallel, the device may only be used for Group C-G / IIB.

<i>Max Entity Parameters for Division 1 and Zone 0 (ia)</i>								
Models	Terminals	Voc (V)	Vt (V)	Isc (mA)	It (mA)	Po (mW)	Ca (μ F)	La (mH)
9176/20-15-00	10-14 (+), 11-15 (-)	-	27.6	-	173	1192	0.66 5	2.5
9176/20-16-00	10-14 (+), 11-15 (-)	-	27.6	-	220	1520	0.66 5	1.8
9176/20-17-00	10(+),11(-) 14(+), 15(-)*	-	27.6	-	120	830	0.66 5	7.5

<i>Max Entity Parameters for Zone 1 (ib)</i>								
Models	Terminals	Voc (V)	Vt (V)	Isc (mA)	It (mA)	Po (mW)	Ca (μ F)	La (mH)
9176/20-15-00	10-14 (+), 11-15 (-)	-	27.6	-	88	1192	0.66 5	2.5
9176/20-16-00	10-14 (+), 11-15 (-)	-	27.6	-	100	1520	0.66 5	1.8

9182/a0-5d-1f, Temperature Transmitter

a = Number of Channels: 1 or 2

d = Output: 0, 1, 3 or 9

f = Limit Contact and SIL option: 1, 2, 3 or 4

<i>Max Output Entity Parameters</i>							
Models	Terminals	Voc (V)	Isc (mA)	Po (mW)	Ca (μ F)	La (mH)	
9182/a0-5d-1f	11,12 or 10,11,12 and/or 13, 15 or 13, 14, 15	6.5	19.7	32	25	90	

Group V: In type of protection Associated Apparatus with Intrinsically Safe outputs.

9170/a0-cd-e1, Switching Repeater

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

- a = Number of Channels: 1 or 2
- c = Input Stage: 1, 2, 3, 4 or 5
- d = Output Stage: 2 or 3
- e = Auxiliary Power: 1 or 2

<i>Max Entity Parameters</i>								
<i>Models</i>	<i>Terminals</i>	<i>Voc</i>	<i>Vt</i>	<i>Isc</i>	<i>It</i>	<i>Po</i>	<i>Ca</i>	<i>La</i>
		(V)	(V)	(mA)	(mA)	(mW)	(μF)	(mH)
9170/a0-cd-e1 b = 1, 3, 4, or 5	10(+),11(-) or 14(+), 15(-)*	10.6	-	24	-	64	2.32	63
	10-14 (+), 11-15 (-)*	-	10.6	-	48	128	2.32	16
9170/a0-2d-e1	10 (+),11(-) or 14(+), 15(-)*	10.6	-	1.1	-	2.9	2.32	1000
	10-14 (+), 11-15 (-)*	-	10.6	-	2.2	5.8	2.32	1000

* = Only for Model type 9170/20-cd-e1

9170/a1-cd-ef, Switching Repeater

- a = Number of Channels: 1 or 2
- c = Input Stage: 1, 2, 3, 4, 5 or 6
- d = Output Stage: 2 or 3
- e = Auxiliary Supply: 1 or 2
- f = Line Fault Detection: 0, 1, 2, or 3

<i>Max Entity Parameters</i>								
<i>Models</i>	<i>Terminals</i>	<i>Voc</i>	<i>Vt</i>	<i>Isc</i>	<i>It</i>	<i>Po</i>	<i>Ca</i>	<i>La</i>
		(V)	(V)	(mA)	(mA)	(mW)	(μF)	(mH)
9170/a1-cd-ef c = 1, 3, 4, 5, 6	10(+),11(-) or 14(+), 15(-)*	9.6	-	10	-	24	3.6	350
	10-14 (+), 11-15 (-)*	-	9.6	-	20	48	3.6	90
9170/a1-2d-ef	10 (+),11(-) or 14(+), 15(-)*	9.6	-	0.61	-	1.5	3.6	1000
	10-14 (+), 11-15 (-)*	-	9.6	-	1.22	3	3.6	1000

* = Only for Model type 9170/21-cd-ef

Group VI: In type of protection Nonincendive and Increased Safety, Encapsulation and Intrinsic Safety with Intrinsically Safe and Ex op is outputs.

9186/12-11-1f, Fiber Optic Isolating Repeater

f = Fault Monitoring: 0 or 1.

Entity Parameters:

Fault Monitoring Circuit; U_i (Vmax) = 24VDC, I_i (Imax) = 600mA, C_i = 0, L_i = 0
 IS Bus Interface U_o (Voc) = 3.7VDC, I_o (Isc) = 148mA, P_o = 137mW, C_o = 100μF, L_o = 1.3mH,
 U_i (Vmax) ±4.2VDC, C_i = 0, L_i = 0

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

Group VII: In type of protection Intrinsic Safety for Division 1 and Zone 0 with Intrinsically Safe outputs.

9164/13-20-08, mA-Isolating Repeater

Entity Parameters:

Input Terminals 3(+) and 4(-): $U_i = 30\text{ V DC}$, $I_i = 150\text{ mA}$, $P_i = 1\text{ W}$, $L_i = 0\text{ mH}$, $C_i = 0\text{ nF}$

Output Terminals 1(+) and 2(-): $U_i = 30\text{ V DC}$, $I_i = 150\text{ mA}$, $P_i = 1\text{ W}$, $L_i = 0\text{ mH}$, $C_i = 0\text{ nF}$

Group VIII: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and Intrinsically Safe output.

9185/11-cd-10, Fieldbus Isolating Repeater

c = Field side interface: 3 or 4

d = Functionality: 5 or 6

Max Output Entity Parameters							
Models	Terminals	Voc	Isc	Po	Ca	La	Vmax
		(V)	(mA)	(mW)	(μF)	(mH)	(V)
9185/11-35-10	3, 5, 6, and 8	3.73	149	139	100	1.3	± 4.2
9185/11-4b-10	3, 4, 8 and 9	5.88	50	73.3	43	15	± 5.88

Group VIII: In type of protection Nonincendive and Increased Safety.

9193/21-11-11, Supply Module

9294/31-12, pac-Bus

9194/50-01, Terminal Set

13. Specific Conditions of Use:

All Modules

1. Shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application including access only by the use of a tool.

9186/12-11-1f, Fiber Optic Isolating Repeater

1. The Fiber Optic Isolating Repeater shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
2. For Zone 1 installations the enclosure shall maintain mechanical retention for the power supply cable.

9193/21-11-11, Supply Module (Group VIII)

9294/31-12, Pac-Bus and 9194/50-01, Terminal Set (Group VIII)

1. Equipment shall be installed in an enclosure with the minimum degree of protection IP54 and providing at

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



US Certificate Of Conformity No: FM16US0122X

least pollution degree 2, according to ANSI/UL 60079-0, ANSI/UL 60079-7 and ANSI/UL 60664-1.

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

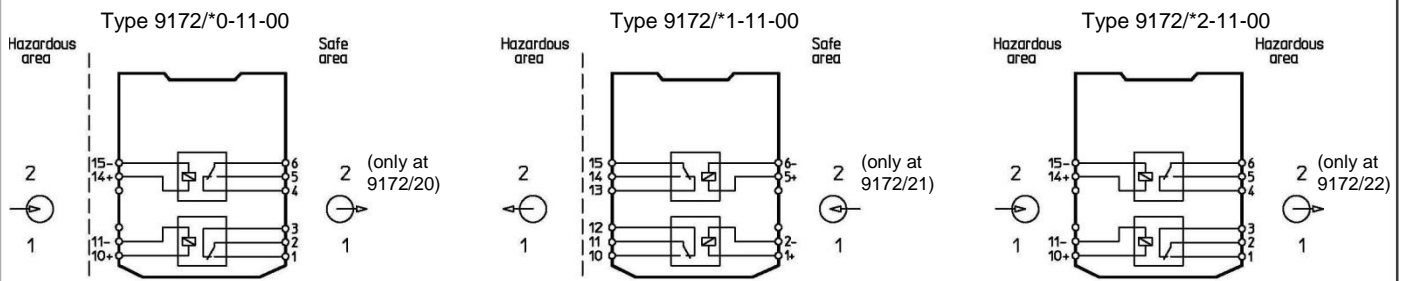
A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
9 th April 2004	Original Issue Project 3017145.
25 th August 2016	<u>Supplement 21:</u> Report Reference: – 3057591 dated 25 th August 2016. Description of the Change: Addition of Type 9164, converted certificate to new format.
26 th October 2016	<u>Supplement 22:</u> Report Reference: – RR206832 dated 26 th October 2016. Description of the Change: 1) Minor circuit changes. 2) Correction of typographical errors and updates to label markings section.
17 th April 2017	<u>Supplement 23:</u> Report Reference: – RR209196 dated 17 th April 2017. Description of the Change: Minor typographical errors corrected.
13 th January 2023	<u>Supplement 24:</u> Report Reference: – PR462553 dated 13 th January 2023. Description of the Change: The System has been modified in the following manner: <ol style="list-style-type: none">1. New PCB Construction for Type 9193/21-11-11 for Zone 2 /Div. 2 locations.2. New 9294/31-12 Pac-Bus.3. List terminal set for pac-Bus Type 9194/50-01.4. Corrections to certificate Various typographical errors and clarify Type 9193/** numbering.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE



Hazardous area: Class I, II, III; DIV 1; Group A-G or Class I; Zone 0; Group IIC/IIB Hazardous Locations
 Safe area: Non-hazardous; Division 2 or Zone 2 Hazardous (Classified) Locations

The Relay Module Type 9172 is an associated apparatus as well as a nonincendive apparatus for installation in non-hazardous or Class I, Division 2 or Zone 2 Hazardous (Classified) Locations and provides intrinsically safe connections for one (or two) field devices located in Class I, II, III, Division 1, Group A-G or Class I, Zone 0 [AEx ia] Group IIC, hazardous locations according to NEC Article 504/505 as listed below.

Relay Module Type 9172/ab-11-00

a = numeral 1 or 2 for number of channels
 b = numeral 0, 1 or 2 for direction of action (relay)

Entity parameters are as follows:

	V _{OC}	I _{SC}	P _O	V _{max}	I _{max}	P _I	L _i	C _i
Type 9172/*0-11-00	0	0	0	30 V	150 mA	1.3 W	0	0
Type 9172/*2-11-00								

Nominal values for the output circuits:

	U _n	I _n	P _n
Type 9172/*0-11-00	250 V AC	4.0 A	100 VA
	220 V DC	0.1 A	
	125 V AC	4.0 A	100 VA
	125 V DC	0.25 A	
	60 V DC	0.3 A	
	30 V DC	4.0 A	100 W

Limits for I.S. circuits connected to output contacts:

	V _{max}	I _{max}	L _i	C _i
Type 9172/*1-11-00	125 V AC	4.0 A	0	0
Type 9172/*2-11-00	125 V DC	0.25 A		
	60 V DC	0.3 A		
	30 V DC	4.0 A		

Notes:

- For Connections refer to chapter Commissioning of Operating Instruction ID-No. 91 726 01 31 0.
- Intrinsically safe apparatus may be switches, thermocouples, LEDs, RTDs or an FM Approved System or Entity device connected in accordance with the manufacturer's installation instructions.
- For Entity concept use the appropriate parameters to ensure the following:
 V_i or $V_{OC} \leq V_{max}$ $C_o, C_a \geq C_i + C_{leads}$ $P_o \leq P_i$
 I_i or $I_{SC} \leq I_{max}$ $L_o, L_a \geq L_i + L_{leads}$
- Electrical apparatus connected to an intrinsically safe system should not use or generate voltages > 250 V (U_{max}).
- Installation should be in accordance with Article 504/505 of the National Electrical Code ANSI/NFPA 70 and ANSI/ISA RP 12.06.01.
- Installation in Canada should be in accordance with the Canadian Electrical Code, CSA C22.1, Part 1, Appendix F.
- Use a general purpose enclosure meeting the requirements of IEC 61010-1 for use in non-hazardous or Class I, Division 2, Hazardous (Classified) Locations.
- Use an FM Approved Dust-ignition proof enclosure appropriate for environmental protection in Class II, Division 1, Groups E, F and G; and Class III, Hazardous (Classified) Locations.
- These modules are to be mounted on DIN rail, DIN rail with pac-Bus (type 9194) or pac-Carrier (type 9195). The I.S. field wiring in any case is connected to the ISpac device terminals.
- Ambient temperature: -20°C ... +70°C (any mounting position)

WARNING: Do not disconnect equipment when a flammable or combustible atmosphere is present.
 AVERTISSEMENT: Ne pas débrancher l'équipement en présence d'atmosphère inflammable ou combustible.

The safety relevant statements of this document may be transferred into the operating instructions. Transferring the text, editorial changes of equivalent meaning are allowed.

			2007	Date	Name	Certification drawing		Scale
			drawn	04.05.	Einsiedler	I.S. Relay Module Type 9172/**-11-00		none
			checked		Kaiser			Sheet
								1 of 1
02	22.10.12	Reistle	STAHL			91 726 01 31 1		Agency
01	13.12.11	Reistle						FM
Version	Date	Name	Ers. f.			Ers. d.		A4

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**
2. **Certificate No:** FM16CA0067X
3. **Equipment:** ISpac System Modules
(Type Reference and Name)
4. **Name of Listing Company:** R. STAHL Schaltgeraete GmbH
5. **Address of Listing Company:** Am Bahnhof 30
D-74638 Waldenburg (Wuertt)
Germany
6. The examination and test results are recorded in confidential report number:
3027620C dated 21st September 2006
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:
CSA-C22.2 No. 213-M1987:R2012, CSA-C22.2 No. 157-92:R2012, CSA-C22.2 No. 1010.1:2004,
CAN/CSA-C22.2 No. 60079-0:2014, CAN/CSA-C22.2 No. 60079-7:2012, CAN/CSA-C22.2 No. 60079-11:2013, CAN/CSA-C22.2 No. 60079-15:2012, CAN/CSA-C22.2 No. 60079-18:2012,
ANSI/ISA-TR 12.21.01:2004
For 9193/21-11-11, 9294/31-12 and 9194/50-01 (see standards listed below)
CSA-C22.2 No. 213-M1987:R2016, CSA-C22.2 No. 1010.1:2012, CAN/CSA-C22.2 No. 60079-0:2019,
CAN/CSA-C22.2 No. 60079-7:2016, CAN/CSA-C22.2 No. 60079-15:2015,
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

Certificate issued by:

J. E. Marquedant
VP, Manager - Electrical Systems

13 January 2023
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

10. Equipment Ratings:

Group I: In type of protection Nonincendive with alternate Zone 2 markings.

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous (Classified) Locations.
Class I, Zone 2, Group IIC Hazardous (Classified) Locations.

Group II: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and Intrinsically Safe output.

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous (Classified) Locations. Class I, Zone 2, non-sparking, protected contacts for Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings. Associated Apparatus with intrinsically safe connections for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G Hazardous (Classified) Locations when installed per manufacturer's control drawings. Class I, Zone 0, Associated Apparatus with intrinsically safe connections for Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings.

Group III: In type of protection Nonincendive and Non-Sparking for Zone 2 markings.

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous (Classified) Locations. Class I, Zone 2, non-sparking, protected contacts for Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings.

Group IV: In type of protection Nonincendive with alternate Zone 2 markings and Intrinsically Safe outputs.

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous (Classified) Locations. Class I, Zone 2, Group IIC Hazardous (Classified) Locations. Associated Apparatus with intrinsically safe connections for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G Hazardous (Classified) Locations when installed per manufacturer's control drawings. Class I, Zone 0, Associated Apparatus with intrinsically safe connections for Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings.

Group V: In type of protection Associated Apparatus with Intrinsically Safe outputs.

Associated Apparatus with intrinsically safe connections for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G Hazardous (Classified) Locations when installed per manufacturer's control drawings. Class I, Zone 0, Associated Apparatus with intrinsically safe connections for Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings.

Group VI: In type of protection Nonincendive and Increased Safety, Encapsulation and Intrinsic Safety with Intrinsically Safe outputs.

Increased safety, encapsulated and intrinsically safe for use in Class I, Zone 1, and Group IIC with intrinsically safe outputs for connections to Class I, Zone 0, Group IIC Hazardous (Classified) Locations when installed per manufacturer's control drawings.

Group VII: In type of protection Intrinsic Safety for Division 1 and Zone 0 with Intrinsically Safe

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

outputs.

Intrinsically Safe for Class I, II, III, Division 1, Groups A, B, C, D, E, F, and G Hazardous (classified) Locations in accordance with Intrinsically Safe connections to Class I, II, III, Division 1, Groups A, B, C, D, E, F, and G Hazardous (classified) Locations when installed per manufacturer's control drawings.
Intrinsically Safe for Class I, Zone 1, Group IIC Hazardous (classified) Locations in accordance with Intrinsically Safe connections to Class I, Zone 0, Group IIC Hazardous (classified) Locations when installed per manufacturer's control drawings.

Group VIII: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and Intrinsically Safe output.

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous Locations. Class I, Zone 2, non-sparking, protected contacts for Group IIC Hazardous Locations when installed per manufacturer's control drawings. Associated Apparatus with intrinsically safe connections for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G Hazardous Locations when installed per manufacturer's control drawings. Class I, Zone 1, Associated Apparatus with intrinsically safe connections for Group IIC Hazardous Locations when installed per manufacturer's control drawings.

Group VIII: In type of protection Nonincendive and Increased safety for Zone 2 markings.

Nonincendive for Class I, Division 2, Groups A, B, C, D. Hazardous Locations. Class I, Zone 2, increased safety for Group IIC Hazardous Locations .

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

11. The marking of the equipment shall include:

Group I: In type of protection Nonincendive, the equipment is labelled with the following marking(s).

Type 9146/**-**-6*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 9146 6 031 002 1

Type 9164/13-20-55

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4; SEE DOC. 91 646 01 31 1

Type 9167/**-**-5*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 676 02 31 1

Type 9170/**-**-6*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 706 03 31 1

Type 9182/**-**-6*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 826 02 31 1

Type 9191/20-00-50

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 916 01 31 1

Type 9192/**-**-** and Type 9196/**-**-** **

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 926 01 31 1

Type 9193/*0-**-**

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 936 01 31 1

Type 9194/31-** and Type 9195/**-**-** **

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; T4 at Ta = 70°C; SEE DOC. 91 956 01 31 1

Group II: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and Intrinsically Safe output.

Type 9146/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 9146 6 031 001 1

Type 9147/**-**-**

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 9147 6 031 001 1

Type 9160/**-**-10 and Type 9163/**-**-10

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC. 91 606 01 31 1

Type 9160/**-**-1F (f= 1 or 3) and Type 9163/**-**-1f (f= 1 or 3)

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

91 606 01 31 1

Type 9162/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 9162 6 031 001 1

Type 9165/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 656 01 31 1

Type 9180/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 9180 6 031 001 1

Group III: In type of protection Nonincendive and Non-Sparking for Zone 2 markings.

Type 9160/**-**-6f, (f= 1 or 3)

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC IIC; T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC. 91 606 02 31 1

Type 9160/**-**-60

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA IIC; T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC. 91 606 02 31 1

Type 9162/**-**-6*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA nC IIC; T4 at Ta = 70°C; SEE DOC. 9162 6 031 002 1

Type 9165/**-**-6*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA IIC; T4 at Ta = 70°C; SEE DOC. 91 656 02 31 1

Type 9185/*2-**-**

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA IIC; T4 at Ta = 70°C; SEE DOC. 91 856 01 31 1

Group IV: In type of protection Nonincendive with alternate Zone 2 markings and Intrinsically Safe outputs.

Type 9167/**-**-0*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 676 01 31 1

Type 9170/*0-*d-1* (d= 0, 1 or 4)

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 706 01 31 1

Type 9170/*1-*d-1* (d= 0, 1 or 4)

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 706 02 31 1

Type 9172/**-**-0*

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 726 01 31 1

Type 9175/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC. 91 756 01 31 1

Type 9176/**-**-0*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 MOUNTING VERTICAL Ta = 70°C or HORIZONTAL Ta = 60°C; SEE DOC. 91 766 01 31 1

Type 9182/**-**-1*

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 826 01 31 1

Group V: In type of protection Associated Apparatus with Intrinsically Safe outputs.

Type 9170/*0-*d-1* (d= 2 or 3) and Type 9170/*0-**-2*

AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 706 01 31 1

Type 9170/*1-*d-1* (d= 2 or 3) and Type 9170/*1-**-2*

AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 0, [AEx/Ex ia] IIC T4 at Ta = 70°C; SEE DOC. 91 706 02 31 1

Group VI: In type of protection Nonincendive and Increased Safety, Encapsulation and Intrinsic Safety with Intrinsically Safe and Ex op is outputs.

Type 9186/12-11-1*

CL I, Zone 1, AEx/Ex e mb ib, GP IIC; CL I, DIV 2, GP A,B,C,D; T4 Ta=65°C; AIS CL I, Zone 0, [AEx/Ex ia, op is] IIC; CL I, II, III, DIV 1, GP A – G; SEE DOC. 9186 6 031 001 1

Group VII: In type of protection Intrinsic Safety for Division 1 and Zone 0 with Intrinsically Safe outputs.

Type 9164/13-20-08

IS FOR CL I,II,III, DIV 1, GP A-G, T4; CL I, ZONE 0, AEx/Ex ia IIC T4; WITH CONNECTIONS FOR CL I,II,III, DIV 1, GP A-G; CL I, ZONE 0, AEx/Ex [ia] IIC; SEE DOC. 91 646 01 31 1

Group VIII: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and Intrinsically Safe output, the equipment is labelled with the following marking(s).

Type 9185/*1-**-**

CL I, DIV 2, GP A,B,C,D; CL I, ZONE 2, AEx/Ex nA GP IIC; AIS CL I,II,III, DIV 1, GP A,B,C,D,E,F,G; CL I, ZONE 1, [AEx/Ex ib] IIC T4 at Ta = 70°C; SEE DOC. 91 856 01 31 1

Group VIII: In type of protection Nonincendive and Increased Safety, the equipment is labelled with the following marking(s).

Type 9193/21-11-11

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

CL I, DIV. 2, GP. A,B,C,D; CL I, ZONE 2, Ex ec nC IIC; T4 at Ta = 70°C Gc; SEE DOC. 91 936 02 31 1

Type 9294/31-12

CL I, DIV. 2, GP. A,B,C,D; CL I, ZONE 2, Ex ec IIC; T4 at Ta = 70°C Gc; SEE DOC. 91 956 01 31 1

Type 9194/50-01

CL I, DIV. 2, GP. A,B,C,D; CL I, ZONE 2, Ex ec IIC; T4 at Ta = 70°C Gc; SEE DOC. 91 956 01 31 1

12. Description of Equipment:

General - The ISpac System is used for isolation between control equipment and field measuring devices. The product features basic units of the ISpac system used to interconnect between the individual isolators of the ISpac modules series to form a system. Digital communications options include HART and 4 to 20 mA current signal.

Construction - The ISpac System consists modules that can be mounted on a DIN rail or on pac Carrier Model type 9195. The electronics housing is non-metallic and the ISpac System modules must be installed within a suitable enclosure for the ultimate application.

Ratings - The ISpac System modules operate at various DC and AC voltages. The modules are rated for use in an enlarged ambient temperature range. Refer to Control Drawings.

Group I: In type of protection Nonincendive.

9146/a0-1d-6f, Frequency Transmitter

a = Number of Channels: 1 or 2

d = Analog / Digital Output: 0, 1, 5 or 9

f = Contact Limits: 1 or 2

9164/13-20-55, mA-Isolating Repeater

9167/ab-11-50, Isolating Repeater Loop Powered

a = Number of Channels: 1 or 2

b = Output Signal: 1, 3 or 4

9170/a1-cd-6f, Switching Repeater

a = Number of Channels: 1 or 2

c = Input Stage: 1, 2, 3, 4, 5 or 6

d = Output Stage: 0, 1 or 4

f = Line Fault Detection: 0, 1, 2 or 3

9182/a0-5d-6f, Temperature Transmitter

a = Number of Channels: 1 or 2

d = Output: 0, 1, 3 or 9

f = Limit Contact and SIL Option: 1, 2, 3 or 4

9191/20-00-50, Termination Module

9192/32-10-10, HART-Multiplexer

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

9193/a0-11-1f, Supply Module

a = Power Inputs: 1 or 2
f = Error Message: 0 or 1

9194/31-cd, pac-Bus

cd = Grid Size: 17 or 22

9195/abc-def-ghij, pac-Carrier

ab = Slots: 08, 16, or 24, alternative a = numeral 1 to 9 for slots and b = numeral 1 or 2 for used channels per slot
c = Model: A, H, M, N, P, S or T
de = Any two digit alpha-numeric character representing the Manufacturer of the Automation system
f = Any one digit numeric character representing the Automation System
gh = Any two digit numeric character representing the type of I/O module
ij = Any one digit alpha-numeric character followed by any one digit numeric character representing the type of connector

9196/16H-def-ghi, Connecting Board

def = Any three digit alpha-numeric or numeric character that represents the Automation system
gh = Any two digit numeric character representing the type of I/O module
i = Any one digit alpha-numeric character representing the type of terminals

Group II: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and Intrinsically Safe output.

9146/a0-1d-1f, Frequency Transmitter

a = Number of Channels: 1 or 2
d = Analog / Digital Output: 0, 1, 5 or 9
f = Contact Limits: 1 or 2
Entity Parameters:
Voc = 10.5VDC, Isc = 23.4mA, Po = 61.4mW Ca = 2.41µF, La = 63mH

9147/a0-99-10 Vibration Transducer Supply Unit

a = Number of Channels: 1 or 2

Entity Parameters:

type	Voc [Vdc]	Isc [mA]	Po [mW]	Lo [mH]	Co [nF]
9147/*0-99-10	26.3	88.3	579	2.2	97

9160/ab-cd-1f, Transmitter Supply Unit

a = Number of Channels: 1 or 2
b = Design: 1, 3, 4 or 9
c = Input: 1 or 8
d = Output: 0 or 1
f = Line fault detection: 0, 1 or 3

Max Entity Parameters					
Terminals	Voc	Isc	Po	Ca	La
	(V)	(mA)	(mW)	(nF)	(mH)

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

12(+), 10(-)	27.0	87.9	574	90	2.3
13(+), 14(-)*	27.0	87.9	574	90	2.3
12(+), 10 (signal), 11(-)	27.0	88.3	574	90	2.3
13(+), 14 (signal), 15(-))*	27.0	88.3	574	90	2.3
10 (signal), 11(-)	4.1	≈0	≈0	100000	1000
14 (signal), 15(-)*	4.1	≈0	≈0	100000	1000

* = Only for Model type 9160/2b-1d-1f

9162/13-11-14, Transmitter Supply Unit with Limit values

Entity Parameters:

2-wire Transmitter (Pins 11, 12); Voc = 27VDC, Isc = 87.9mA, Po = 574mW, Ca = 90nF, La = 2.3mH,
 3-wire Transmitter (Pins 10, 11, 12); Voc = 27VDC, Isc = 88.3mA, Po = 574mW, Ca = 90nF, La = 2.3mH,
 Active Current Source (Pins 10, 11); Voc = 4.1VDC, Isc ≈ 0mA, Po ≈ 0mW, Ca = 100μF, La = 1H

9163/ab-cd-1f, Isolating Repeater Input

- a = Number of Channels: 1 or 2
- b = Design: 1, 3, 4 or 9
- c = Input: 1 or 8
- d = Output Signal: 0 or 1
- f = Special Function: 0, 1 or 3

Entity Parameter only for type 9163/**-1*-1*:

Terminals 10 (+), 11 (-) or 14 (+), 15 (-)*;
 Vmax = 30 V, Imax = 150 mA, Pi = 1 W, Ci = 0 μF, Li = 0 mH
 Voc = 0 V, Isc = 0 mA, Po = 0 mW, Ca = - , La -

* Only for Model type 9163/2b-8d-1f

Entity Parameter only for type 9163/**-8*-1*:

Terminals 10/12 (+), 11 (-) or 13/14 (+), 15 (-)*;
 Vmax = 30 V, Imax = 150 mA, Pi = 1 W, Ci = 0 μF, Li = 0 mH
 Voc = 4.1 V, Isc = 0 mA, Po = 0 mW, Ca = - , La -

* Only for Model type 9163/2b-8d-1f

9165/ab-11-1f, Isolating Repeater

- a = Number of Channels: 1 or 2
- b = Signal: 1 or 6
- f = Special Input: 0 or 1

<i>Max Entity Parameters</i>					
<i>Terminals</i>	<i>Voc</i>	<i>Isc</i>	<i>Po</i>	<i>Ca</i>	<i>La</i>
	<i>(V)</i>	<i>(mA)</i>	<i>(mW)</i>	<i>(nF)</i>	<i>(mH)</i>
10(+), 11(-)	25.6	96	605	103	1.9
14(+), 15(-)*	25.6	96	605	103	1.9

* = Only for Model type 9165/2b-11-1f

9180/ab-77-11, Resistance Isolator

- a = Number of Channels: 1 or 2
- b = Measuring Range: 0 or 1

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

Entity Parameters:

Voc = 6.5VDC, I_{sc} = 16.5mA, P_o = 27mW Ca = 25μF, La = 120mH

Group III: In type of protection Nonincendive and Non-Sparking for Zone 2 markings.

9160/ab-cd-6f, Transmitter Supply Unit

- a = Number of Channels: 1 or 2
- b = Design: 1, 3, 4 or 9
- c = Input: 1 or 8
- d = Output: 0 or 1
- f = Line fault detection: 0, 1 or 3

9162/13-11-64, Transmitter Supply Unit with Limit values

9165/ab-11-6f, Isolating Repeater

- a = Number of Channels: 1 or 2
- b = Signal: 1 or 6
- f = Special Input: 0 or 1

9185/12-4d-10, Fieldbus Isolating Repeater

- d = Functionality: 5 or 6

Group IV: In type of protection Nonincendive and Intrinsically Safe outputs.

Type 9167/ab-11-00, Isolating Repeater Loop Powered

- a = Number of Channels: 1 or 2
- b = Output Signal: 1, 3 or 4

Max Entity Parameters								
Models	Terminals	Voc	Vt	Isc	It	Po	Ca	La
		(V)	(V)	(mA)	(mA)	(mW)	(μF)	(mH)
9167/a1-11-00	10 (+), 11 (-) or 14 (+), 15 (-)*	15.7	-	60.0	-	233	0.48 7	10
9167/a3-11-00	10 (+), 11 (-) or 14 (+), 15 (-)*	25.0	-	99	-	613	0.11	2.5
9167/a4-11-00	10 (+), 11 (-) or 14 (+), 15 (-)*	18.8	-	107	-	503	0.26 6	3

* Only for Model type 9167/2b-11-00

9170/a0-cd-11, Switching Repeater

- a = Number of Channels: 1 or 2
- c = Input Stage: 1, 2, 3, 4, or 5
- d = Output Stage: 0, 1 or 4

Max Entity Parameters								
Models	Terminals	Voc	Vt	Isc	It	Po	Ca	La
		(V)	(V)	(mA)	(mA)	(mW)	(μF)	(mH)

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

9170/a0-cd-11 c =1, 3, 4, 5	10(+),11(-) or 14(+), 15(-)*	10.6	-	24	-	64	2.32	63
	10-14 (+), 11-15 (-)*	-	10.6	-	48	128	2.32	16
9170/a0-2d-11	10 (+),11(-) or 14(+), 15(-)*	10.6	-	1.1	-	2.9	2.32	1000
	10-14 (+), 11-15 (-)*	-	10.6	-	2.2	5.8	2.32	1000

* = Only for Model type 9170/20-cd-11

9170/a1-cd-1f, Switching Repeater

a = Number of Channels: 1 or 2
 c = Input Stage: 1, 2, 3, 4, 5 or 6
 d = Output Stage: 0, 1 or 4
 f = Line Fault Detection: 0, 1, 2 or 3

Max Entity Parameters								
Models	Terminals	Voc	Vt	Isc	It	Po	Ca	La
		(V)	(V)	(mA)	(mA)	(mW)	(μ F)	(mH)
9170/a1-cd-1f c =1, 3, 4, 5, 6	10(+),11(-) or 14(+), 15(-)*	9.6	-	10	-	24	3.6	350
	10-14 (+), 11-15 (-)*	-	9.6	-	20	48	3.6	90
9170/a1-2d-1f	10 (+),11(-) or 14(+), 15(-)*	9.6	-	0.61	-	1.5	3.6	1000
	10-14 (+), 11-15 (-)*	-	9.6	-	1.22	3	3.6	1000

* = Only for Model type 9170/21-cd-1f

9172/a0-11-00, IS Relay Module

a = Number of Channels: 1 or 2

Entity Parameter: Terminals 10 (+), 11 (-) or 14 (+), 15 (-)*;
 Vmax = 30 V, Imax = 150 mA, Pi = 1.3 W, Ci = 0 μ F, Li = 0 mH.
 Voc = 0 V, Isc = 0 mA, Po = 0 mW, Ca = - , La -
 * Only for Model type 9172/20-11-00

9172/a1-11-00, IS Relay Module

a = Number of Channels: 1 or 2

Models	Terminals	Vmax	Imax	Pi	Ci	Li
9172/a1-11-00	10 (NO), 11 (C) 12 (NC) or 13 (NC) 14 (NO), 15 (C) *	125 Vac	4 A	-	0	0
		125 Vdc	0.25 A	-	0	0
		60 Vdc	0.3 A	-	0	0
		30 Vdc	4 A	-	0	0

* Only for Model type 9172/21-11-00

9172/a2-11-00, IS Relay Module

a = Number of Channels: 1 or 2

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

Entity Parameter: Terminals 10 (+), 11 (-) or 14 (+), 15 (-)*;
 Vmax = 30 V, Imax = 150 mA, Pi = 1.3 W, Ci = 0 μF, Li = 0 mH.
 Voc = 0 V, Isc = 0 mA, Po = 0 mW, Ca = - , La -
 * Only for Model type 9172/22-11-00

Models	Terminals	Vmax	Imax	Pi	Ci	Li
9172/a2-11-00	1 (NO), 2 (C) 3 (NC) or 4 (NC) 5 (NO), 6 (C) *	125 Vac	4 A	-	0	0
		125 Vdc	0.25 A	-	0	0
		60 Vdc	0.3 A	-	0	0
		30 Vdc	4 A	-	0	0

* Only for Model type 9172/22-11-00

9175/a0-1d-1f, Digital Output

a = Number of Channels: 1 or 2
 d = Output: 2, 4 or 6
 f = line fault option: 0, 1 or 2

<i>Max Entity Parameters for Division 1 and Zone 0 (ia)</i>								
Models	Terminals	Voc (V)	Vt (V)	Isc (mA)	It (mA)	Po (mW)	Ca (μF)	La (mH)
9175/a0-12-1f	10(+),11(-) or 14(+), 15(-)*	11.3	-	75	-	210	1.79	6.3
	10-14 (+), 11-15 (-)*	-	11.3	-	150	420	1.79	1.5
9175/a0-14-1f	10 (+),11(-) or 14(+), 15(-)*	19.6	-	150	-	732	0.235	1.5
	10-14 (+), 11-15 (-)*	-	19.6	-	300	1464	0.235	0.3
9175/a0-16-1f	10 (+),11(-) or 14(+), 15(-)*	27.6	-	110	-	760	0.085	1.2

* = Only for Model type 9175/20-1d-1f

<i>Max Entity Parameters for Zone 1 (ib)</i>								
Models	Terminals	Voc (V)	Vt (V)	Isc (mA)	It (mA)	Po (mW)	Ca (μF)	La (mH)
9175/a0-14-1f	10 (+),11(-) or 14(+), 15(-)*	19.6	-	60	-	732	0.235	1.5
	10-14 (+), 11-15 (-)*	-	19.6	-	120	1464	0.235	0.3
9175/a0-16-1f	10 (+),11(-) or 14(+), 15(-)*	27.6	-	50	-	760	0.085	1.2

* = Only for Model type 9175/20-1d-1f

9175/20-16-1f, Digital Output

f = line fault option: 0, 1 or 2

When channel 1 and channel 2 are connected in parallel, the device may only be used for Group C-G / IIB.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

<i>Max Entity Parameters for Division 1 and Zone 0 (ia)</i>								
Models	Terminals	Voc	Vt	Isc	It	Po	Ca	La
		(V)	(V)	(mA)	(mA)	(mW)	(μ F)	(mH)
9175/20-16-1f	10-14 (+), 11-15 (-)	-	27.6	-	220	1520	665	1.8

<i>Max Entity Parameters for Zone 1 (ib)</i>								
Models	Terminals	Voc	Vt	Isc	It	Po	Ca	La
		(V)	(V)	(mA)	(mA)	(mW)	(μ F)	(mH)
9175/20-16-1f	10-14 (+), 11-15 (-)	-	27.6	-	100	1520	665	1.8

9176/a0-1d-00, Digital Output Loop Powered

a = Number of Channels: 1 or 2
d = Output Signal: 2, 4, 5, 6 or 7

<i>Max Entity Parameters for Division 1 and Zone 0 (ia)</i>								
Models	Terminals	Voc	Vt	Isc	It	Po	Ca	La
		(V)	(V)	(mA)	(mA)	(mW)	(μ F)	(mH)
9176/a0-12-00	10(+),11(-) or 14(+), 15(-)*	11.3	-	75	-	210	1.79	6.3
	10-14 (+), 11-15 (-)*	-	11.3	-	150	420	1.79	1.5
9176/a0-14-00	10(+),11(-) or 14(+), 15(-)*	19.6	-	150	-	732	0.23 5	1.5
	10-14 (+), 11-15 (-)*	-	19.6	-	300	1464	0.23 5	0.3
9176/a0-15-00	10(+),11(-) or 14(+), 15(-)*	27.6	-	86.5	-	596	0.08 5	1.8
9176/a0-16-00	10(+),11(-) or 14(+), 15(-)*	27.6	-	110	-	760	0.08 5	1.2
9176/a0-17-00	10(+),11(-) or 14(+), 15(-)*	27.6	-	60	-	415	0.08 5	6.6

* Only for Model type 9176/20-1d-00

<i>Max Entity Parameters for Zone 1 (ib)</i>								
Models	Terminals	Voc	Vt	Isc	It	Po	Ca	La
		(V)	(V)	(mA)	(mA)	(mW)	(μ F)	(mH)
9176/a0-14-00	10(+),11(-) or 14(+), 15(-)*	19.6	-	60	-	732	0.23 5	1.5
	10-14 (+), 11-15 (-)*	-	19.6	-	120	1464	0.23 5	0.3
9176/a0-15-00	10 (+),11(-) or 14(+), 15(-)*	27.6	-	44	-	596	0.08 5	1.8
9176/a0-16-00	10 (+),11(-) or 14(+), 15(-)*	27.6	-	50	-	760	0.08 5	1.2

* = Only for Model type 9176/20-1d-00

9176/20-1d-00, Digital Output Loop Powered

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

d = Output Signal: 5, 6 or 7

When channel 1 and channel 2 are connected in parallel, the device may only be used for Group C-G / IIB.

Max Entity Parameters for Division 1 and Zone 0 (ia)								
Models	Terminals	Voc (V)	Vt (V)	Isc (mA)	It (mA)	Po (mW)	Ca (μF)	La (mH)
9176/20-15-00	10-14 (+), 11-15 (-)	-	27.6	-	173	1192	0.66 5	2.5
9176/20-16-00	10-14 (+), 11-15 (-)	-	27.6	-	220	1520	0.66 5	1.8
9176/20-17-00	10(+),11(-) 14(+), 15(-)*	-	27.6	-	120	830	0.66 5	7.5

Max Entity Parameters for Zone 1 (ib)								
Models	Terminals	Voc (V)	Vt (V)	Isc (mA)	It (mA)	Po (mW)	Ca (μF)	La (mH)
9176/20-15-00	10-14 (+), 11-15 (-)	-	27.6	-	88	1192	0.66 5	2.5
9176/20-16-00	10-14 (+), 11-15 (-)	-	27.6	-	100	1520	0.66 5	1.8

9182/a0-5d-1f, Temperature Transmitter

a = Number of Channels: 1 or 2

d = Output: 0, 1, 3 or 9

f = Limit Contact and SIL option: 1, 2, 3 or 4

Max Output Entity Parameters						
Models	Terminals	Voc (V)	Isc (mA)	Po (mW)	Ca (μF)	La (mH)
9182/a0-5d-1f	11,12 or 10,11,12 and/or 13, 15 or 13, 14, 15	6.5	19.7	32	25	90

Group V: In type of protection Associated Apparatus with Intrinsically Safe outputs.

9170/a0-cd-e1, Switching Repeater

a = Number of Channels: 1 or 2

c = Input Stage: 1, 2, 3, 4 or 5

d = Output Stage: 2 or 3

e = Auxiliary Power: 1 or 2

Max Entity Parameters								
Models	Terminals	Voc (V)	Vt (V)	Isc (mA)	It (mA)	Po (mW)	Ca (μF)	La (mH)
9170/a0-cd-e1 b = 1, 3, 4, or 5	10(+),11(-) or 14(+), 15(-)*	10.6	-	24	-	64	2.32	63
	10-14 (+), 11-15 (-)*	-	10.6	-	48	128	2.32	16

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

9170/a0-2d-e1	10 (+),11(-) or 14(+), 15(-)*	10.6	-	1.1	-	2.9	2.32	1000
	10-14 (+), 11-15 (-)*	-	10.6	-	2.2	5.8	2.32	1000

* = Only for Model type 9170/20-cd-e1

9170/a1-cd-ef, Switching Repeater

a = Number of Channels: 1 or 2
 c = Input Stage: 1, 2, 3, 4, 5 or 6
 d = Output Stage: 2 or 3
 e = Auxiliary Supply: 1 or 2
 f = Line Fault Detection: 0, 1, 2, or 3

Max Entity Parameters								
Models	Terminals	Voc (V)	Vt (V)	Isc (mA)	It (mA)	Po (mW)	Ca (μF)	La (mH)
9170/a1-cd-ef c =1, 3, 4, 5, 6	10(+),11(-) or 14(+), 15(-)*	9.6	-	10	-	24	3.6	350
	10-14 (+), 11-15 (-)*	-	9.6	-	20	48	3.6	90
9170/a1-2d-ef	10 (+),11(-) or 14(+), 15(-)*	9.6	-	0.61	-	1.5	3.6	1000
	10-14 (+), 11-15 (-)*	-	9.6	-	1.22	3	3.6	1000

* = Only for Model type 9170/21-cd-ef

Group VI: In type of protection Nonincendive and Increased Safety, Encapsulation and Intrinsic Safety with Intrinsically Safe and Ex op is outputs.

9186/12-11-1f, Fiber Optic Isolating Repeater

f = Fault Monitoring: 0 or 1.

Entity Parameters:

Fault Monitoring Circuit; Ui (Vmax) = 24VDC, Ii (Imax) = 600mA, Ci = 0, Li = 0
 IS Bus Interface Uo (Voc) = 3.7VDC, Io (Isc) = 148mA, Po = 137mW, Co = 100μF, Lo = 1.3mH,
 Ui (Vmax) ±4.2VDC, Ci = 0, Li = 0

Group VII: In type of protection Intrinsic Safety for Division 1 and Zone 0 with Intrinsically Safe outputs.

9164/13-20-08, mA-Isolating Repeater

Entity Parameters:

Input Terminals 3(+), 4(-): Ui = 30Vdc, Ii = 150mA, Pi = 1W, Li = 0mH, Ci = 0nF
 Output Terminals 1(+), 2(-): Ui = 30Vdc, Ii = 150mA, Pi = 1W, Li = 0mH, Ci = 0nF

Group VIII: In type of protection Nonincendive and Non-Sparking for Zone 2 markings and Intrinsically Safe output.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0067X

9185/11-cd-10, Fieldbus Isolating Repeater

c = Field side interface: 3 or 4

d = Functionality: 5 or 6

<i>Max Output Entity Parameters</i>							
<i>Models</i>	<i>Terminals</i>	<i>Voc</i>	<i>Isc</i>	<i>Po</i>	<i>Ca</i>	<i>La</i>	<i>Vmax</i>
		<i>(V)</i>	<i>(mA)</i>	<i>(mW)</i>	<i>(μF)</i>	<i>(mH)</i>	<i>(V)</i>
9185/11-35-10	3, 5, 6, and 8	3.73	149	139	100	1.3	± 4.2
9185/11-4b-10	3, 4, 8 and 9	5.88	50	73.3	43	15	± 5.88

Group VIII: In type of protection Nonincendive and Increased Safety.

Type 9193/21-11-11, Supply Module

Type 9294/31-12, pac-Bus

Type 9194/50-01, Terminal Set

13. **Specific Conditions of Use:**

All Modules

1. Shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application including access only by the use of a tool.

9186/12-11-1f, Fiber Optic Isolating Repeater

1. The Fiber Optic Isolating Repeater shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
2. For Zone 1 installations the enclosure shall maintain mechanical retention for the power supply cable.

9193/21-11-11, Supply Module (Group VIII)

9294/31-12, Pac-Bus and 9194/50-01, Terminal Set (Group VIII)

1. Equipment shall be installed in an enclosure with the minimum degree of protection IP54 and providing at least pollution degree 2, according to CSA C22.2No. 60079-0, CSA C22.2No.60079-7 and CSA C22.2 No. 60664-1.

14. **Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals Canadian Certification Scheme.

15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

16. **Certificate History**

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



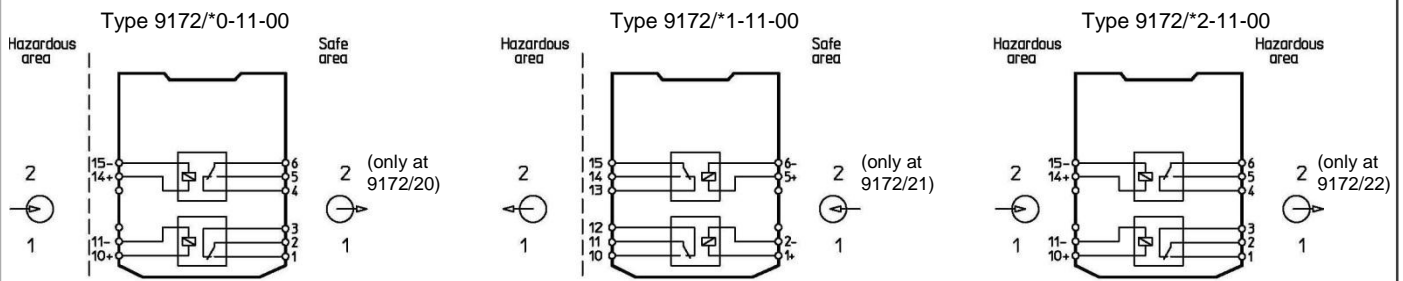
Canadian Certificate Of Conformity No: FM16CA0067X

Details of the supplements to this certificate are described below:

Date	Description
21 st September 2006	Original Issue 3027620C.
25 th August 2016	<u>Supplement 15:</u> Report Reference: – 3057591 dated 25 th August 2016. Description of the Change: Addition of Type 9164, converted certificate to new format.
26 th October 2016	<u>Supplement 16:</u> Report Reference: – RR206832 dated 26 th October 2016. Description of the Change: 1) Minor circuit changes. 2) Correction of typographical errors and updates to label markings section.
17 th April 2017	<u>Supplement 17:</u> Report Reference: – RR209196 dated 17 th April 2017. Description of the Change: Minor typographical errors corrected.
13 th January 2023	<u>Supplement 18:</u> Report Reference: – PR462553 dated 13 th January 2023. Description of the Change: The System has been modified in the following manner: <ol style="list-style-type: none">1. New PCB Construction for Type 9193/21-11-11 for Zone 2 /Div. 2 locations.2. New 9294/31-12 Pac-Bus .3. List terminal set for pac-Bus Type 9194/50-01.4. Corrections to certificate Various typographical errors and clarify Type 9193/** numbering

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com



Hazardous area: Class I, II, III; DIV 1; Group A-G or Class I; Zone 0; Group IIC/IIB Hazardous Locations
 Safe area: Non-hazardous; Division 2 or Zone 2 Hazardous (Classified) Locations

The Relay Module Type 9172 is an associated apparatus as well as a nonincendive apparatus for installation in non-hazardous or Class I, Division 2 or Zone 2 Hazardous (Classified) Locations and provides intrinsically safe connections for one (or two) field devices located in Class I, II, III, Division 1, Group A-G or Class I, Zone 0 [AEx ia] Group IIC, hazardous locations according to NEC Article 504/505 as listed below.

Relay Module Type 9172/ab-11-00

a = numeral 1 or 2 for number of channels
 b = numeral 0, 1 or 2 for direction of action (relay)

Entity parameters are as follows:

	V _{OC}	I _{SC}	P _O	V _{max}	I _{max}	P _I	L _i	C _i
Type 9172/*0-11-00	0	0	0	30 V	150 mA	1.3 W	0	0
Type 9172/*2-11-00								

Nominal values for the output circuits:

	U _n	I _n	P _n
Type 9172/*0-11-00	250 V AC	4.0 A	100 VA
	220 V DC	0.1 A	
	125 V AC	4.0 A	100 VA
	125 V DC	0.25 A	
	60 V DC	0.3 A	
	30 V DC	4.0 A	100 W

Limits for I.S. circuits connected to output contacts:

	V _{max}	I _{max}	L _i	C _i
Type 9172/*1-11-00	125 V AC	4.0 A	0	0
Type 9172/*2-11-00	125 V DC	0.25 A		
	60 V DC	0.3 A		
	30 V DC	4.0 A		

Notes:

- For Connections refer to chapter Commissioning of Operating Instruction ID-No. 91 726 01 31 0.
- Intrinsically safe apparatus may be switches, thermocouples, LEDs, RTDs or an FM Approved System or Entity device connected in accordance with the manufacturer's installation instructions.
- For Entity concept use the appropriate parameters to ensure the following:
 V_i or $V_{OC} \leq V_{max}$ $C_o, C_a \geq C_i + C_{leads}$ $P_o \leq P_i$
 I_i or $I_{SC} \leq I_{max}$ $L_o, L_a \geq L_i + L_{leads}$
- Electrical apparatus connected to an intrinsically safe system should not use or generate voltages > 250 V (U_{max}).
- Installation should be in accordance with Article 504/505 of the National Electrical Code ANSI/NFPA 70 and ANSI/ISA RP 12.06.01.
- Installation in Canada should be in accordance with the Canadian Electrical Code, CSA C22.1, Part 1, Appendix F.
- Use a general purpose enclosure meeting the requirements of IEC 61010-1 for use in non-hazardous or Class I, Division 2, Hazardous (Classified) Locations.
- Use an FM Approved Dust-ignition proof enclosure appropriate for environmental protection in Class II, Division 1, Groups E, F and G; and Class III, Hazardous (Classified) Locations.
- These modules are to be mounted on DIN rail, DIN rail with pac-Bus (type 9194) or pac-Carrier (type 9195). The I.S. field wiring in any case is connected to the ISpac device terminals.
- Ambient temperature: -20°C ... +70°C (any mounting position)

WARNING: Do not disconnect equipment when a flammable or combustible atmosphere is present.
 AVERTISSEMENT: Ne pas débrancher l'équipement en présence d'atmosphère inflammable ou combustible.

The safety relevant statements of this document may be transferred into the operating instructions. Transferring the text, editorial changes of equivalent meaning are allowed.

			2007	Date	Name	Certification drawing		Scale
			drawn	04.05.	Einsiedler	I.S. Relay Module Type 9172/**-11-00		none
			checked		Kaiser			Sheet
								1 of 1
02	22.10.12	Reistle	STAHL			91 726 01 31 1		Agency
01	13.12.11	Reistle						FM
Version	Date	Name	Ers. f.			Ers. d.		A4

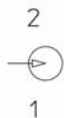
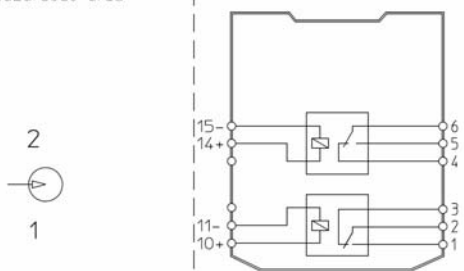
The copying, distribution and utilization of this document as well as the communication of list contents to others without expressed authorization is prohibited. Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or ornamental design registration.

Weitergabe sowie Vervielfältigung dieses Dokuments, Verwertung und Mitteilung seines Inhalts sind verboten, soweit nicht ausdrücklich gestattet. Zuwiderhandlungen verpflichten zu Schadensersatz. Alle Rechte für den Fall der Patent-, Gebrauchsmuster- oder Geschmackschutzrechte vorbehalten.

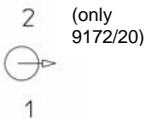
F 4830 503

Type 9172/*0-11-00

Hazardous area

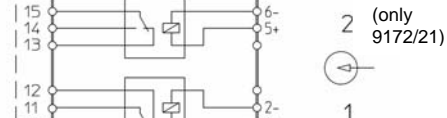
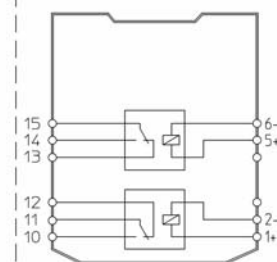


Safe area



Type 9172/*1-11-00

Hazardous area



Safe area

Hazardous area: Class I, II, III; Div. 1; Group A-G; Hazardous Locations
 Safe area: Non-hazardous Locations

The Relay Module Type 9172 is an associated apparatus and provides intrinsically safe connections for one (or two) field devices located in Class I, II, III, Division 1, Group A-G, hazardous locations according to NEC Article 504 as listed below.

Relay Module Type 9172/ab-11-00

a = numeral 1 or 2 for number of channels
 b = numeral 0 or 1 for direction of action (relay)

Entity parameters are as follows:

	V _{max}	I _{max}	P _i	L _i	C _i
Type 9172/*0-11-00	30 V	150 mA	1.3 W	0	0

Nominal values for the output circuits:

	U _n	I _n	P _n
Type 9172/*0-11-00	125 V AC	4 A	100 VA
	125 V DC	0.25 A	
	60 V DC	0.8 A	
	30 V DC	4 A	100 W

Limits for I.S. circuits connected to output contacts:

	V _{max}	I _{max}	L _i	C _i
Type 9172/*1-11-00	125 V AC	4 A	0	0
	125 V DC	0.25 A		
	60 V DC	0.8 A		
	30 V DC	4 A		

Nominal ratings for non I.S. input circuits:

	U _n	I _n
Type 9172/*1-11-00	24 V DC	20 mA

Notes:

- Intrinsically safe apparatus may be Simple Apparatus in accordance with Article 504 of the National Electrical Code, ANSI/NFPA 70 (for example: switches, thermocouples, LEDs, RTDs) a third-party certified or Entity device connected in accordance with the manufacturer's installation instructions.
- For Entity concept use the appropriate parameters to ensure the following:
 V_i or $V_{OC} \leq V_{max}$ $C_a \geq C_i + C_{Cable}$
 I_t or $I_{SC} \leq I_{max}$ $L_a \geq L_i + L_{Cable}$
- Capacitance and inductance of the field wiring from the intrinsically safe equipment to the associated apparatus shall be calculated and must be included in the system calculations as shown above. Cable capacitance (Cc) plus intrinsically safe equipment capacitance (Ci) must be less than the marked capacitance (Ca or Co) shown on any associated apparatus used. The same applies for inductance (Lc, Li and La or Lo, respectively). Where the cable capacitance and inductance per foot are not known, the following values shall be used: Cc=60pF/ft., Lc=0.2µH/ft.
- Electrical apparatus connected to an intrinsically safe system should not use or generate voltages > 250 V (U_{max}).
- Intrinsically safe circuits must be installed, wired and separated in accordance with Article 504.20 of the National Electrical Code (ANSI/NFPA 70).
- Where multiple circuits extend from the same piece of associated apparatus, they must be installed in separate cables or in one cable having suitable insulation. Refer to Article 504 of the National Electrical Code and Instrument Society of America Recommended Practice ISA RP12.6 for installing intrinsically safe equipment.
- Associated Apparatus must be installed in an enclosure suitable for the application in accordance with the National Electrical Code, ANSI/NFPA 70.
- Use an UL or NRTL listed Dust-ignition proof enclosure appropriate for environmental protection in Class II, Division 1, Groups E,F and G; and Class III, hazardous (classified) locations.
- The isolators have not been evaluated for use in electrical combination with other associated apparatus.
- These modules are to be mounted on DIN rail, DIN rail with pac-Bus (type 9194) or pac-Carrier (type 9195). The field wiring in any case is connected to the IS pac device terminals.
- Ambient temperature: -20 °C ... +70 °C (any mounting position).

WARNING: To prevent ignition of flammable or combustible atmospheres disconnect power before servicing

Index	Date	Name	2007	Date	Name	Certification drawing I.S. Relay Module Type 9172 91 726 01 31 3	Scale
			Drawn by	18.04.	Einsiedler		none
			Checked	18.04.	Kaiser		Sheet 1 of 1
						Agency UL	
						Rep. f.	Rep. t.
							A4

