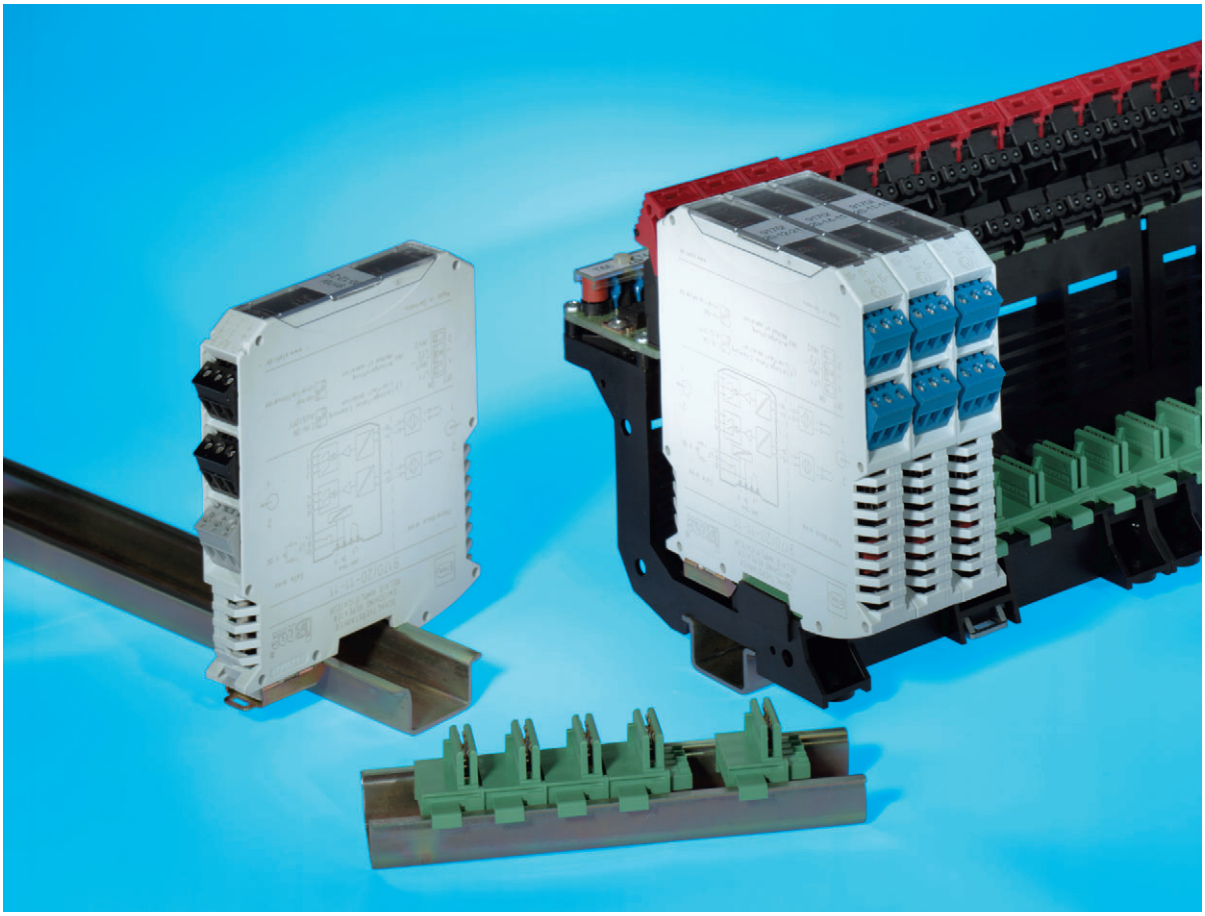
PROCON SYSTEMS INC.
www.proconsystems.com



STAHL

Engineering Guideline

pac-Carriers Type 9195

for Yokogawa ProSafe-RS

SIL Safety Integrity Level
IEC 61508 IEC 61511

Issued December 2009

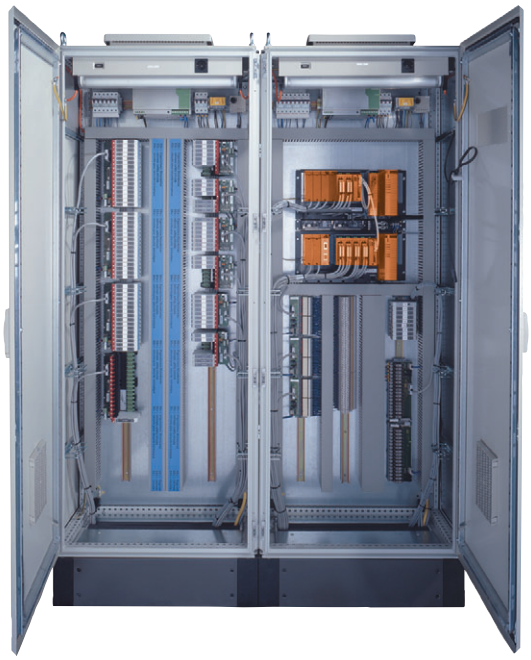
Integrated solutions for Yokogawa

R. STAHL offers a wide range of customized solutions which allow the user to integrate field signals into the Yokogawa systems in an easy and cost effective manner. The solutions designed for Yokogawa cover the different ways of connecting field devices to process control systems nowadays. It ranges from carrier solutions with conventional I.S. isolators to the Remote I/O system and last but not least fieldbus solutions.

In addition to the products the R. STAHL Competence Centre provides the full range of services in consulting, engineering, commissioning and maintenance in order to contribute to Yokogawa's overall project business. We do not only regard ourselves as a manufacturer and supplier of components and systems, but also as a provider of comprehensive services.

Our engineers have many years of experience, from the engineering to the handling of smallest details, which is beneficial for you and your customer.

R. STAHL is able to manufacture completely equipped I.S. system cabinets for control room or field station. In addition to our approved R. STAHL standard components additional components from certified suppliers are used.



11161E00

Example of a customer specific field station for a Yokogawa system

Your benefits:

- Application oriented and cost optimized solutions for your customer project
- In depth consulting regarding automation solutions for hazardom areas
- Ready-made and pre-tested field stations facilitate the engineering and installation
- Experienced technical support

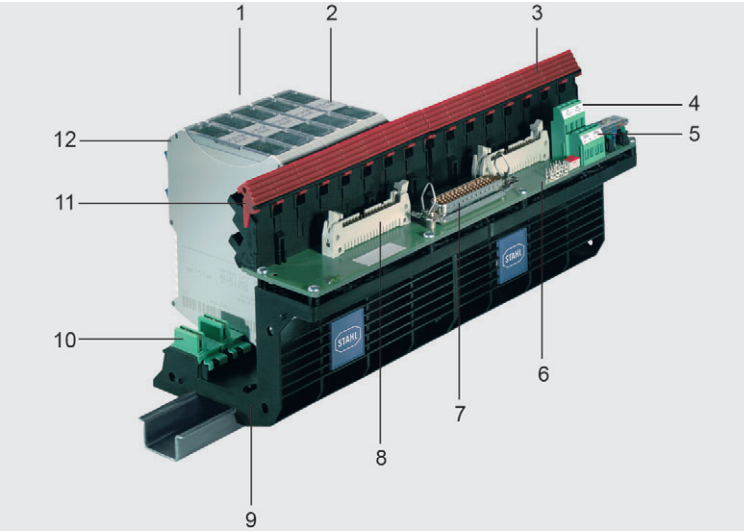
E-mail contact: support.instrumentation@stahl.de

Integration of conventional process automation interfaces - ISpac Carrier

The ISpac carrier reflects the intention of R. STAHL to provide state-of-the-art concepts tailored to the needs of Yokogawa for the field of process automation. It is designed to reduce the cost of installation by space saving compact design and simplified installation. The modules can be mounted without the need for a tool. The intrinsically safe signal is directly connected to the modules by means of three different types of detachable connectors - screw type, cage clamp type and insulating cutting type.
The connection to the system card is simply done by plugging the system cable into the socket of the pac carrier.

Interoperability with PRM

The integration into the Yokogawa's PRM can be easily achieved by the selection of an appropriate type of pac-Carrier along with the ISpac HART multiplexer type 9192. The pac-Carrier picks-up the HART signals and interfaces them to the HART multiplexer.
The PRM communicates with the multiplexer via RS 485 bus. A detailed description can be found in Yokogawa's GS-file for the PRM system.



09828E00

1 Detachable connectors
- Screw terminals or
- Cage clamp terminals or
- Insulating cutting terminals

2 Labelling for module, slot and carrier

3 Ejector mechanism

4 Redundant and fused supply

5 Power supply failure and line fault signalling via relay

6 System card specific PCB

7 System cable plug

8 Signal duplication and/ or connection HART multiplexer

9 For DIN rail or mounting plate

10 Integrated pac bus for power supply and line-fault signalling

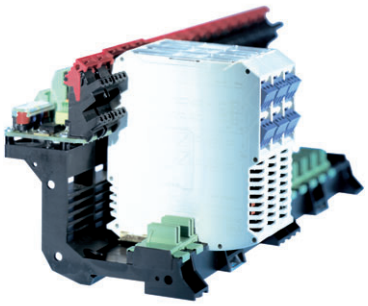
11 Secure snap-in mechanism, without tool

12 Single slot, any signal mixture

Content

Control system			pac-Carrier					
Signal type	I/O cards type	Channel	Slots	HART-MUX	Redundancy	pac-Carrier type	ISpac type	Page
DI	SDV 144	16	8	no	yes	9195/08A-YO3-03A2	9170/20-11-11 9170/20-14-11 9170/20-14-12 (LFT)	35-40
	SDV 144	16	16	no	yes	9195/16A-YO3-03A2	9170/10-14-11 9170/10-11-11 9170/10-14-12 (LFT)	41-46
DO	SDV 531	8	8	no	yes	9195/08A-YO3-04A2	9175/10-1.-11 9175/10-1.-00 9175/10-1.-12 (LFT)	47-52
	SDV 541	16	8	no	yes	9195/08A-YO3-05A2	9176/20-1.-00 9172/21-11-00	53-58
AI	SAI 143	16	8	9192/32	yes	9195/08H-YO3-01V1	9160/23-11-11	7-12
	SAI 143	16	16	9192/32	yes	9195/16H-YO3-01V1	9160/13-11-11 9182/10-51-13	13-18
	SAV 144	16	8	9192/32	yes	9195/08H-YO3-02V1	9160/23-11-11	23-28
	SAV 144	16	16	9192/32	yes	9195/16H-YO3-02V1	9160/13-11-11 9182/10-51-13	29-34
AO	SAI 533	8	8	9192/32	yes	9195/08H-YO3-06V1	9165/16-11-13 9167/16-11-00	19-22

pac-Carrier
Type 9195/08H-YO3-01V1

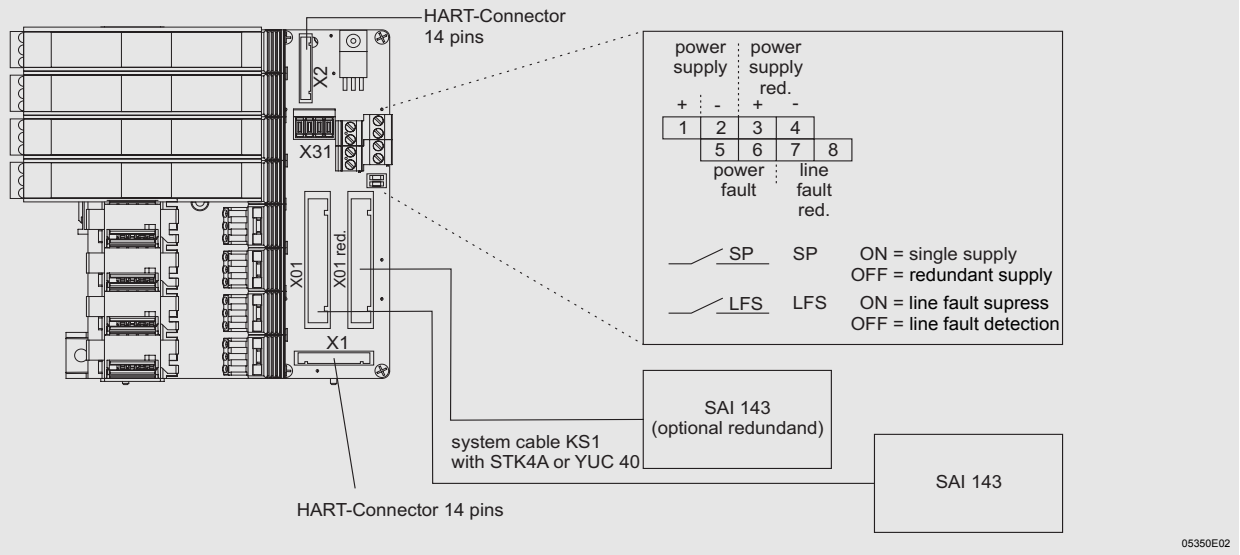


05179E00

- **For Yokogawa / ProSafe-RS / SAI 143**
- Signal types: 16 x AI
- pac-Carrier for 8 modules, i.e. up to 16 signals
- ISpac isolators AI 9160/23-11-11 can be used
- Connection to HART-management systems
- Customized system cables type KS1 or YUC 40 to automation system
- Redundant power supply with message contact and exchangeable fuses
- Horizontal or vertical installation
- Simple installation on DIN rail or mounting plate
- Many labeling possibilities
- Fast and secure installation of the isolators without tools
- Comfortable exchange of the isolators with secured ejector mechanism
- Installation possible in Zone 2 and Div. 2

Comfortable and simple integration of the I.S. isolators ISpac into Yokogawa / ProSafe-RS automation systems via system specific connection boards and system cables.

System Overview



05350E02

pac-Carrier Type 9195

Selection Table

Control system			pac-Carrier			
PLS manufacturer	**PLS**	**I/O-cards type**	**Slots**	**HART-MUX**	**Redundancy**	**Type**
Yokogawa	ProSafe-RS	SAI 143	8	9192/32	yes	9195/08H-YO3-01V1

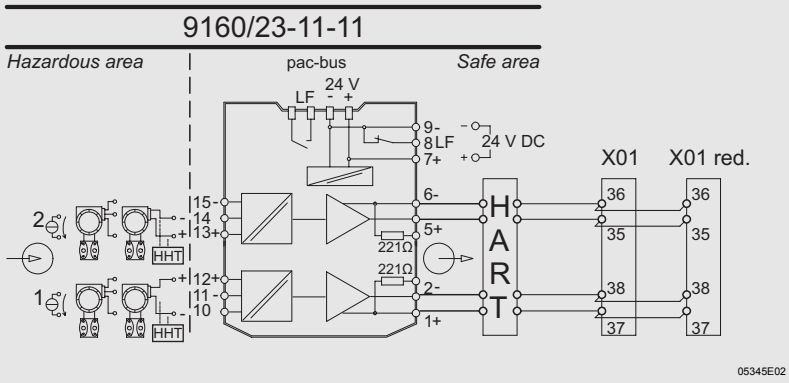
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ⓔx II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	22.8 V ... 25.2 V required by ProSafe-RS
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; T 2,0 A; exchangeable, for primary and redundant supply
Polarity reversal protection	yes
Connection of field devices	
Connection	at the terminals of the I.S. isolators (specification see "signal loops")
Number of channels	16
Connection automation system (X01, X01 red.)	
Connection	2 x plug 40 pole for KS1 or YUC 40 cable
Number of channels	16 (additional 16 redundant channels available)
HART interface	
Connector X1	HART Connector 14 pole (to HART Multiplexer type 9192/32 or to first pac Carrier)
Connector X2	HART Connector optional to second pac Carrier
Error messaging (X31)	
Power fail PF	Contact (35 V / 100 mA), closed in good conditions
Line fail	Contact (35 V / 100 mA), closed in good conditions
Setting switch "SP"	Power failure message suppressed for redundant supply (for single supply)
Setting switch "LFS"	Line fault message suppressed
Ambient conditions	
Ambient temperature	- 20 °C ... + 70 °C (any mounting position, pay attention of the I.S. isolators specification)
Storage temperature range	- 40 °C ... + 80 °C
Relative humidity	≤ 95 %
Mechanical data	
Weight	approx. 320 g
Installation	on DIN rail, EN 50022 (NS35/15; NS35/7.5) or mounting plate (4 x screw M 6)
Mounting position	Vertical or horizontal
Fire protection class (UL-94)	V0

Signal Loops

The diagrams below show typical applications. Please refer to the connection list to get the entire connection scheme.
Basic technical parameters of the ISpac isolating repeaters can be found at the end of this document. The detailed specifications can be downloaded at: www.ispac.info.

Transmitter supply unit (AI)
for 2-, 3-wire transmitter and
mA-sources for 2-wire transmitter with HART



SIL Specification

ISpac type	Function	SIL	Tested by	Test report number	SFF	PFD	T_{PROOF}
9160/23-11-11.	AI	2	Exida	Stahl 05/08-34 R008 (V2, Rev. R2)	73%	4,64E-04	1
9192/32-10-10.	Hart-Multiplexer	3	Exida	Stahl 04/04-03 R002 (V1, Rev. R1)	91%	1,02E-05	5

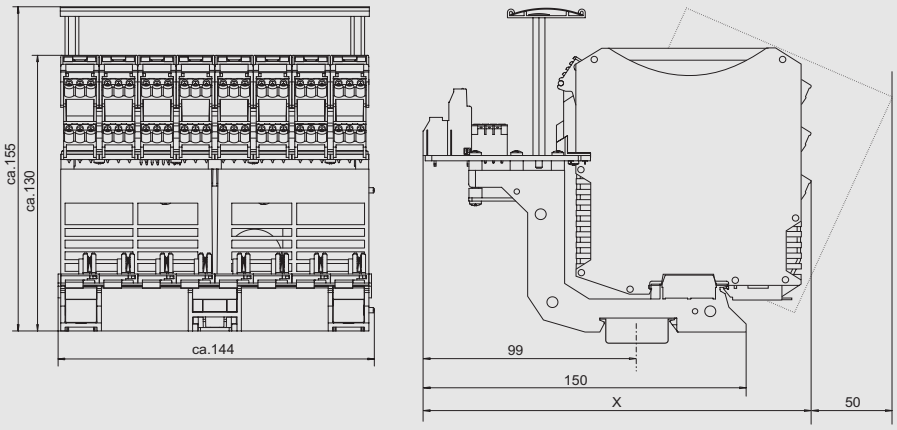
The pac-Carrier type 9195 is considered as wiring within the SIF.

Please note: Avoid to use both channels of the same isolator for redundant structures like 1002, 2003 etc. In this case a common cause factor need to be applied. Alternative: Spread the channels over different isolators.

Accessories and Spare Parts

Designation	Illustration	Description	Order number	Weight kg
Non-Ex i Termination Module	 06314E00	The termination module is used to integrate non-Ex i field circuit into the system integration solution pac-carrier type 9195. In such a way it enables a flexible mixture of Ex i and non-Ex i field circuits.	**9191/20-00-50s**	0.060

Dimension Drawings (All Dimensions in mm) - Subject to Alterations



05177E00

	Dimension x
Screw terminals	176 mm
Cage clamp terminals	186 mm

Please note: In order to snap in the ISpac modules an extra space of approx. 50 mm is required.

Please read the “ISpac engineering guideline“ carefully before you start to engineer the enclosures with incorporated ISpac modules with or without pac-Carriers. The “ISpac engineering guideline“ can be downloaded from: www.ispac.info.

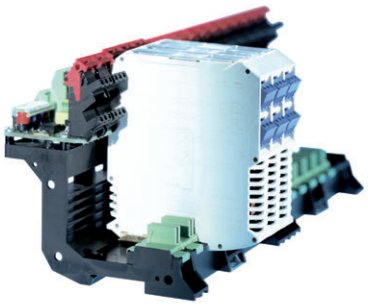
Connection List

terminal i.s. 1)		channel	carrier slot	input no.	pin X01 (STK4A + KS1)		pin X01 red. (STK4A + KS1)	
10	+	1	1	1	+	37	+	37
11	-				-	38	-	38
14	+	2		2	+	35	+	35
15	-				-	36	-	36
10	+	3	2	3	+	33	+	33
11	-				-	34	-	34
14	+	4		4	+	31	+	31
15	-				-	32	-	32
10	+	5	3	5	+	29	+	29
11	-				-	30	-	30
14	+	6		6	+	27	+	27
15	-				-	28	-	28
10	+	7	4	7	+	25	+	25
11	-				-	26	-	26
14	+	8		8	+	23	+	23
15	-				-	24	-	24
10	+	9	5	9	+	21	+	21
11	-				-	22	-	22
14	+	10		10	+	19	+	19
15	-				-	20	-	20
10	+	11	6	11	+	17	+	17
11	-				-	18	-	18
14	+	12		12	+	15	+	15
15	-				-	16	-	16
10	+	13	7	13	+	13	+	13
11	-				-	14	-	14
14	+	14		14	+	11	+	11
15	-				-	12	-	12
10	+	15	8	15	+	9	+	9
11	-				-	10	-	10
14	+	16		16	+	7	+	7
15	-				-	8	-	8

05183E02

1) Different possibilities of field device connections

pac-Carrier
Type 9195/16H-YO3-01V1

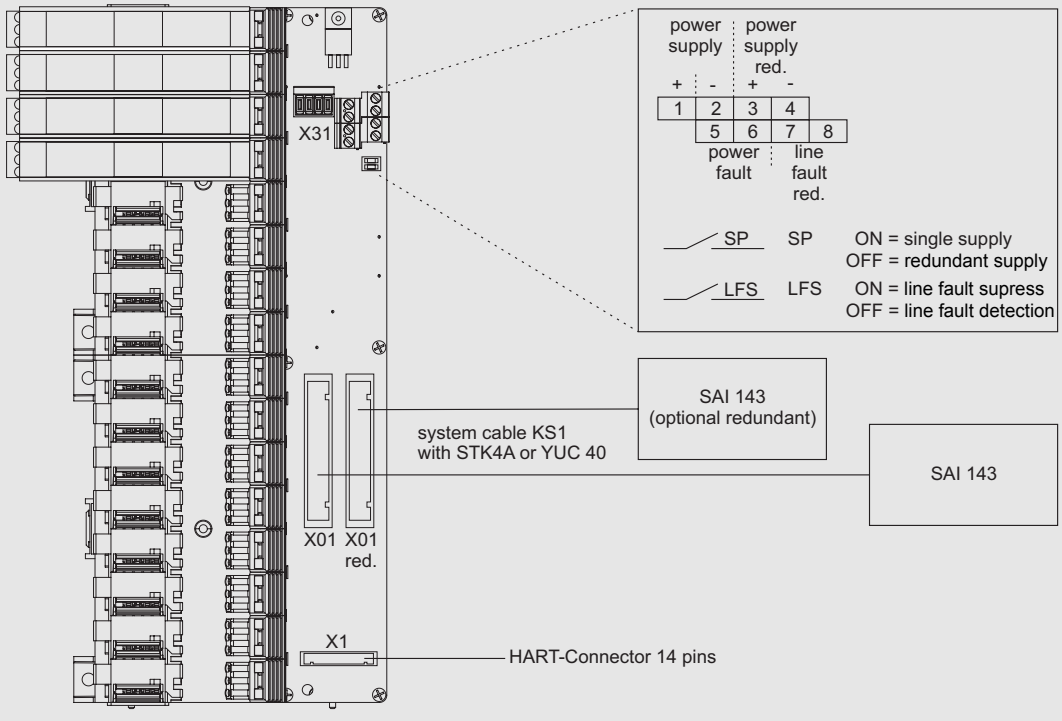


05179E00

- **For Yokogawa / ProSafe-RS / SAI 143**
- Signal types: 16 x AI
- pac-Carrier for 16 modules, i.e. up to 16 signals
- ISpac isolators AI 9160/13-11-11 or 9182/10-51-13 can be used
- Connection to HART-management systems
- Customized system cables type KS1 or YUC 40 to automation system
- Redundant power supply with message contact and exchangeable fuses
- Horizontal or vertical installation
- Simple installation on DIN rail or mounting plate
- Many labeling possibilities
- Fast and secure installation of the isolators without tools
- Comfortable exchange of the isolators with secured ejector mechanism
- Installation possible in Zone 2 and Div. 2

Comfortable and simple integration of the I.S. isolators ISpac into Yokogawa / ProSafe-RS automation systems via system specific connection boards and system cables.

System Overview



05346E02

pac-Carrier Type 9195

Selection Table

Control system			pac-Carrier			
PLS manufacturer	**PLS**	**I/O-cards type**	**Slots**	**HART-MUX**	**Redundancy**	**Type**
Yokogawa	ProSafe-RS	SAI 143	16	9192/32	yes	9195/16H-YO3-01V1

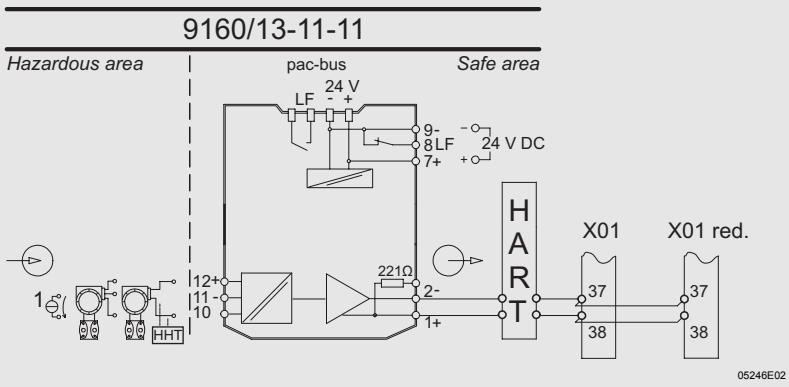
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ⓔx II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	22.8 V ... 25.2 V required by ProSafe-RS
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; T 2,0 A; exchangeable, for primary and redundant supply
Polarity reversal protection	yes
Connection of field devices	
Connection	at the terminals of the I.S. isolators (specification see "signal loops")
Number of channels	16
Connection automation system (X01, X01 red.)	
Connection	2 x plug 40 pole for KS1 or YUC 40 cable
Number of channels	16 (additional 16 redundant channels available)
HART interface	
Connector X1	HART Connector 14 pole (to HART Multiplexer type 9192/32 or to first pac Carrier)
Error messaging (X31)	
Power fail PF	Contact (35 V / 100 mA), closed in good conditions
Line fail	Contact (35 V / 100 mA), closed in good conditions
Setting switch "SP"	Power failure message suppressed for redundant supply (for single supply)
Setting switch "LFS"	Line fault message suppressed
Ambient conditions	
Ambient temperature	- 20 °C ... + 70 °C (any mounting position, pay attention of the I.S. isolators specification)
Storage temperature range	- 40 °C ... + 80 °C
Relative humidity	≤ 95 %
Mechanical data	
Weight	approx. 610 g
Installation	on DIN rail, EN 50022 (NS35/15; NS35/7.5) or mounting plate (4 x screw M 6)
Mounting position	Vertical or horizontal
Fire protection class (UL-94)	V0

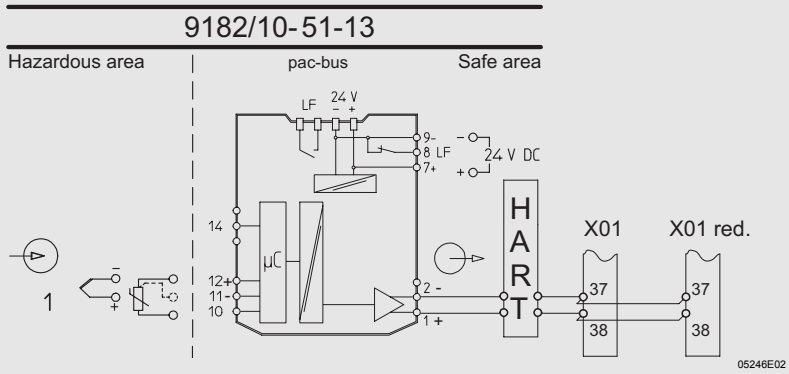
Signal Loops

The diagrams below show typical applications. Please refer to the connection list to get the entire connection scheme.
Basic technical parameters of the ISpac isolating repeaters can be found at the end of this document. The detailed specifications can be downloaded at: www.ispac.info.

Transmitter supply unit (AI)
for 2-, 3-wire transmitter and
mA-sources for 2-wire transmitter with
HART



Temperature transmitter (AI)
for resistance thermometer,
thermocouple and RTD
(Configuration ISpac Wizard software)



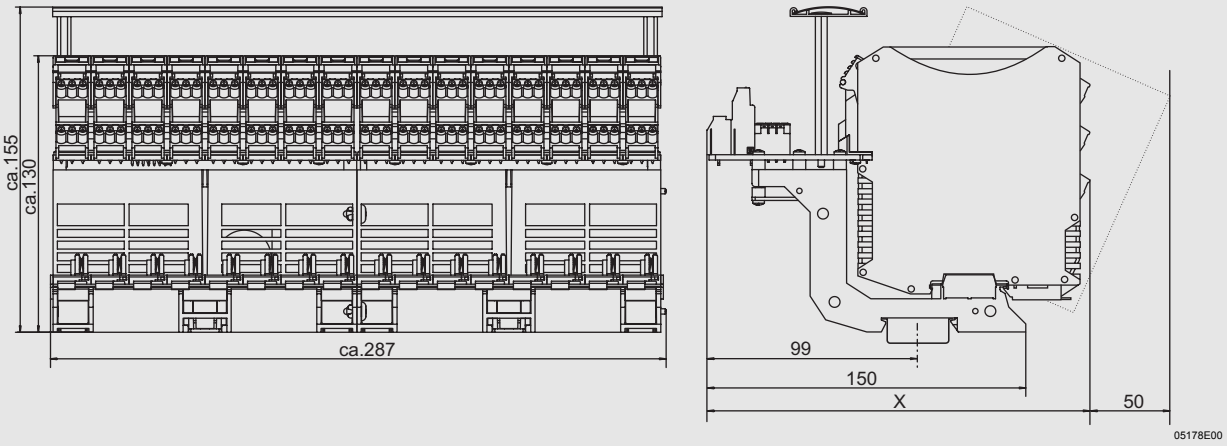
SIL Specification

ISpac type	Function	SIL	Tested by	Test report number	SFF	PFD	T_{PROOF}
9182/10-51-13.	Temperature input	2	Exida	Stahl 07/07-23 R016 (V0, Rev. R1)	78%	7,59E-04	1
9160/1.-11-13.	AI	2	Exida	Stahl 05/08-34 R008 (V2, Rev. R1)	73%	4,64E-04	1
9192/32-10-10	HART-Multiplexer	3	Exida	Stahl 04/04-03 R002 (V1, Rev. R1)	91%	1,02E-05	5
The pac-Carrier type 9195 is considered as wiring within the SIF.							

Accessories and Spare Parts

Designation	Illustration	Description	Order number	Weight kg
Non-Ex i Termination Module	 06314E00	The termination module is used to integrate non-Ex i field circuit into the system integration solution pac-carrier type 9195. In such a way it enables a flexible mixture of Ex i and non-Ex i field circuits.	**9191/20-00-50s**	0.060

Dimension Drawings (All Dimensions in mm) - Subject to Alterations



	Dimension x
Screw terminals	176 mm
Cage clamp terminals	186 mm

Please note: In order to snap in the ISpac modules an extra space of approx. 50 mm is required.

Please read the “ISpac engineering guideline“ carefully before you start to engineer the enclosures with incorporated ISpac modules with or without pac-Carriers. The “ISpac engineering guideline“ can be downloaded from: www.ispac.info.

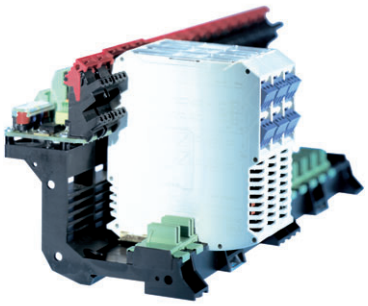
Connection List

terminal i.s. 1)		channel	carrier slot	input no.	pin X01 (STK4A + KS1)		pin X01 red. (STK4A + KS1)	
10	+	1	1	1	+	37	+	37
11	-				-	38	-	38
14	+	2	2	2	+	35	+	35
15	-				-	36	-	36
10	+	3	3	3	+	33	+	33
11	-				-	34	-	34
14	+	4	4	4	+	31	+	31
15	-				-	32	-	32
10	+	5	5	5	+	29	+	29
11	-				-	30	-	30
14	+	6	6	6	+	27	+	27
15	-				-	28	-	28
10	+	7	7	7	+	25	+	25
11	-				-	26	-	26
14	+	8	8	8	+	23	+	23
15	-				-	24	-	24
10	+	9	9	9	+	21	+	21
11	-				-	22	-	22
14	+	10	10	10	+	19	+	19
15	-				-	20	-	20
10	+	11	11	11	+	17	+	17
11	-				-	18	-	18
14	+	12	12	12	+	15	+	15
15	-				-	16	-	16
10	+	13	13	13	+	13	+	13
11	-				-	14	-	14
14	+	14	14	14	+	11	+	11
15	-				-	12	-	12
10	+	15	15	15	+	9	+	9
11	-				-	10	-	10
14	+	16	16	16	+	7	+	7
15	-				-	8	-	8

05336E02

1) Different possibilities of field device connections

pac-Carrier
Type 9195/08H-YO3-06V1

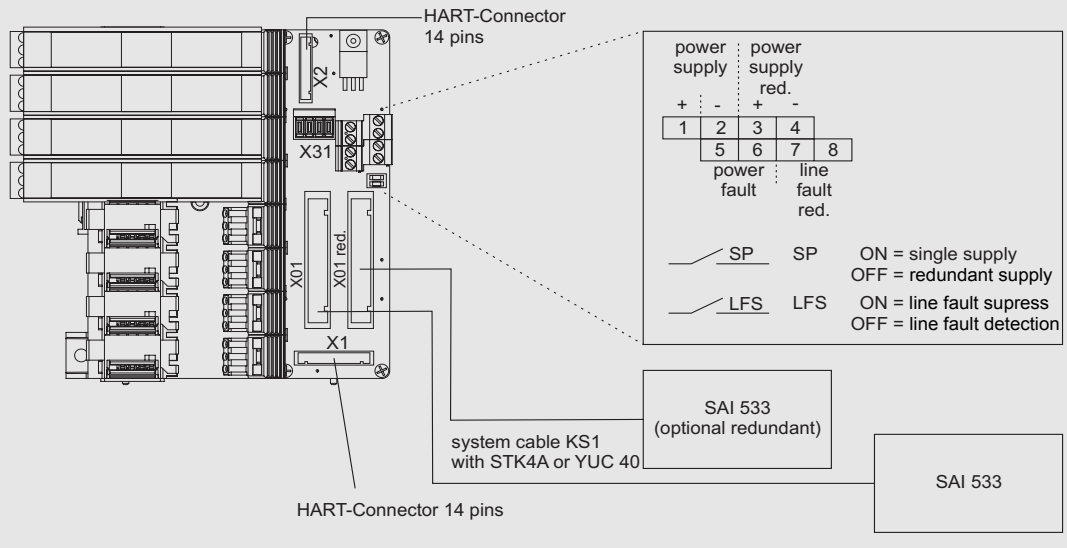


05179E00

- **For Yokogawa / ProSafe-RS / SAI 533**
- Signal types: 8 x AO
- pac-Carrier for 8 modules, i.e. up to 8 signals
- ISpac isolators AO 9165/16-11-13 or 9167/16-11-00 can be used
- Connection to HART-management systems
- Customized system cables type STK4A - KS1 or YUC 40 to automation system
- Redundant power supply with message contact and exchangeable fuses
- Horizontal or vertical installation
- Simple installation on DIN rail or mounting plate
- Many labeling possibilities
- Fast and secure installation of the isolators without tools
- Comfortable exchange of the isolators with secured ejector mechanism
- Installation possible in Zone 2 and Div. 2

Comfortable and simple integration of the I.S. isolators ISpac into Yokogawa / ProSafe-RS automation systems via system specific connection boards and system cables.

System Overview



05394E02

pac-Carrier Type 9195

Selection Table

Control system			pac-Carrier			
PLS manufacturer	**PLS**	**I/O-cards type**	**Slots**	**HART-MUX**	**Redundancy**	**Type**
Yokogawa	ProSafe-RS	SAI 533	8	9192/32	yes	9195/08H-YO3-06V1

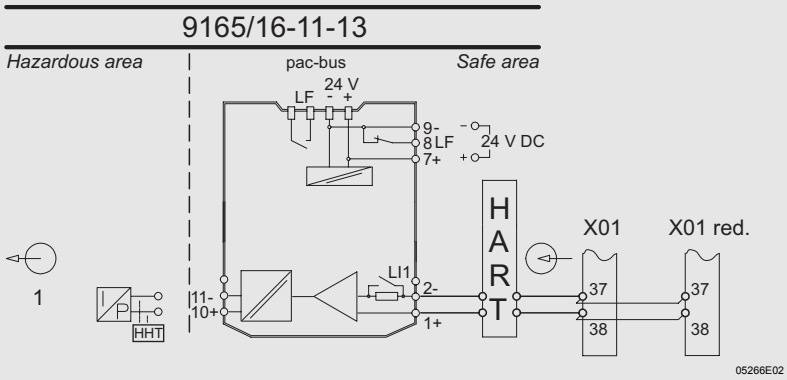
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ⓔx II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	22.8 V ... 25.2 V required by ProSafe-RS
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; T 2,0 A; exchangeable, for primary and redundant supply
Polarity reversal protection	yes
Connection of field devices	
Connection	at the terminals of the I.S. isolators (specification see "signal loops")
Number of channels	8
Connection automation system (X01, X01 red.)	
Connection	2 x plug 40 pole for KS1 or YUC 40 cable
Number of channels	8 (additional 8 redundant channels available)
HART interface	
Connector X1	HART Connector 14 pole (to HART Multiplexer type 9192/32 or to first pac Carrier)
Connector X2	HART Connector optional to second pac Carrier
Error messaging (X31)	
Power fail PF	Contact (35 V / 100 mA), closed in good conditions
Line fail	Contact (35 V / 100 mA), closed in good conditions
Setting switch "SP"	Power failure message suppressed for redundant supply (for single supply)
Setting switch "LFS"	Line fault message suppressed
Ambient conditions	
Ambient temperature	- 20 °C ... + 70 °C (any mounting position, pay attention of the I.S. isolators specification)
Storage temperature range	- 40 °C ... + 80 °C
Relative humidity	≤ 95 %
Mechanical data	
Weight	approx. 320 g
Installation	on DIN rail, EN 50022 (NS35/15; NS35/7.5) or mounting plate (4 x screw M 6)
Mounting position	Vertical or horizontal
Fire protection class (UL-94)	V0

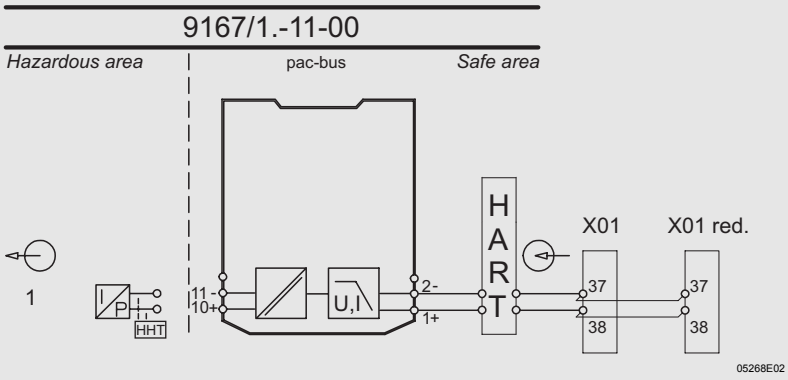
Signal Loops

The diagrams below show typical applications. Please refer to the connection list to get the entire connection scheme.
Basic technical parameters of the ISpac isolating repeaters can be found at the end of this document. The detailed specifications can be downloaded at: www.ispac.info.

Isolating repeater (AO)
for control valves, i/p-converters or indicators
bi-directional HART communication



Isolating repeater (AO)
Loop-powered, for control valves, i/p-converters or indicators
bi-directional HART communication



SIL Specification

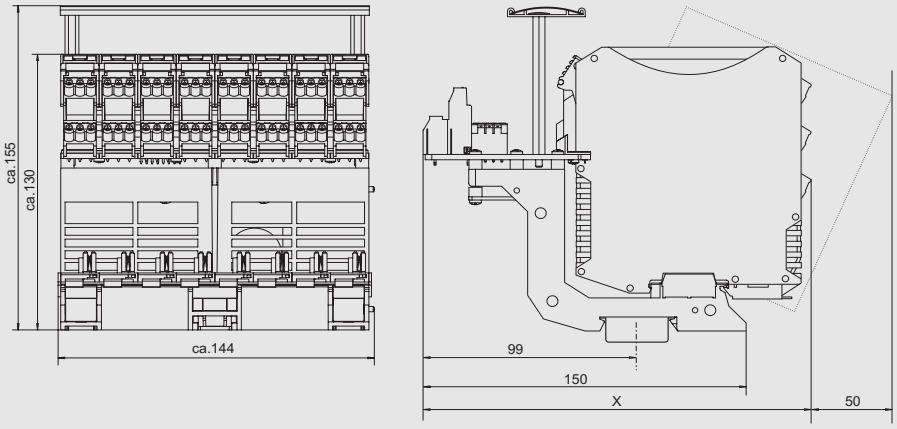
ISpac type	Function	SIL	Tested by	Test report number	SFF	PFD	T_{PROOF}
9165/16-11-13.	AO	2	Exida	Stahl 04/04-03 R004 (V2, Rev. R1)	73%	4,64E-04	1
9167/1.-11-00.	AO	2	Exida	Stahl 04/04-03 R005 (V2, Rev. R1)	97%	1,02E-05	5
9192/32-10-10	HART-Multiplexer	3	Exida	Stahl 04/04-03 R002 (V1, Rev. R1)	91%	1,02E-05	5

The pac-Carrier type 9195 is considered as wiring within the SIF.

Accessories and Spare Parts

Designation	Illustration	Description	Order number	Weight kg
Non-Ex i Termination Module	 06314E00	The termination module is used to integrate non-Ex i field circuit into the system integration solution pac-carrier type 9195. In such a way it enables a flexible mixture of Ex i and non-Ex i field circuits.	**9191/20-00-50s**	0.060

Dimension Drawings (All Dimensions in mm) - Subject to Alterations



05177E00

	Dimension x
Screw terminals	176 mm
Cage clamp terminals	186 mm

Please note: In order to snap in the ISpac modules an extra space of approx. 50 mm is required.

Please read the “ISpac engineering guideline“ carefully before you start to engineer the enclosures with incorporated ISpac modules with or without pac-Carriers. The “ISpac engineering guideline“ can be downloaded from: www.ispac.info.

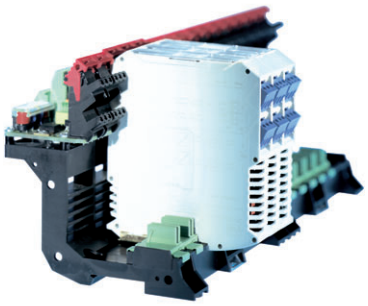
Connection List

terminal i.s.		channel	carrier slot	output no.	pin X01 (STK4A + KS1)		pin X01 red. (STK4A + KS1)	
10	+	1	1	1	+	38	+	38
11	-				-	37	-	37
10	+	2	2	2	+	34	+	34
11	-				-	33	-	33
10	+	3	3	3	+	30	+	30
11	-				-	29	-	29
10	+	4	4	4	+	26	+	26
11	-				-	25	-	25
10	+	5	5	5	+	22	+	22
11	-				-	21	-	21
10	+	6	6	6	+	18	+	18
11	-				-	17	-	17
10	+	7	7	7	+	14	+	14
11	-				-	13	-	13
10	+	8	8	8	+	10	+	10
11	-				-	9	-	9

05323E02

1) analog output: 9165/16-11-13 (1 ch.)

pac-Carrier
Type 9195/08H-YO3-02V1

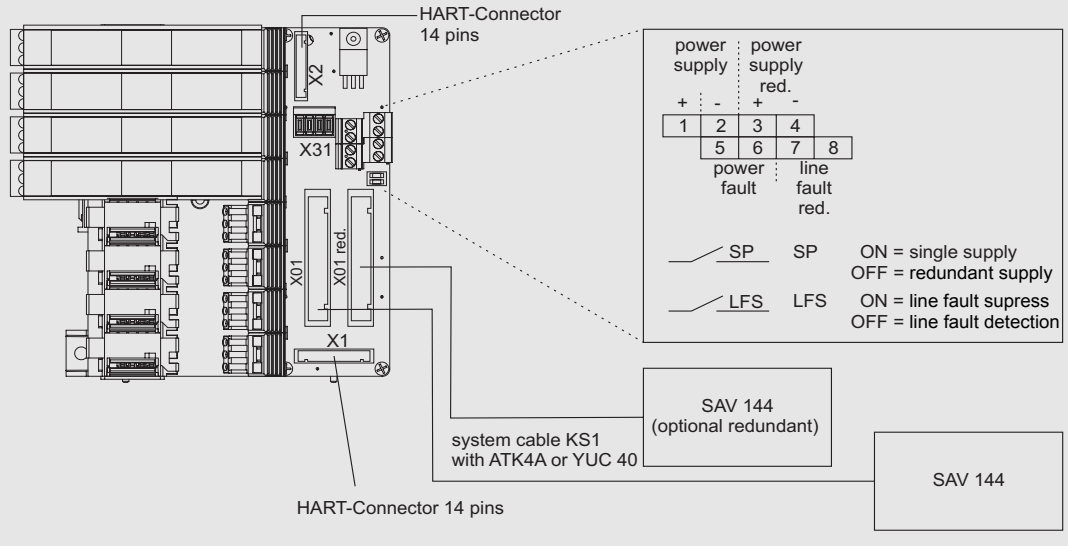


05179E00

- **For Yokogawa / ProSafe-RS / SAV 144**
- Signal types: 16 x AI
- pac-Carrier for 8 modules, i.e. up to 16 signals
- ISpac isolators AI 9160/23-11-11 can be used
- Connection to HART-management systems
- Customized system cables type KS1 and adapter ATK4A or YUC 40 to automation system
- Redundant power supply with message contact and exchangeable fuses
- Horizontal or vertical installation
- Simple installation on DIN rail or mounting plate
- Many labeling possibilities
- Fast and secure installation of the isolators without tools
- Comfortable exchange of the isolators with secured ejector mechanism
- Installation possible in Zone 2 and Div. 2

Comfortable and simple integration of the I.S. isolators ISpac into Yokogawa / ProSafe-RS automation systems via system specific connection boards and system cables.

System Overview



05454E02

STAHL

pac-Carrier Type 9195

Selection Table

Control system			pac-Carrier			
PLS manufacturer	**PLS**	**I/O-cards type**	**Slots**	**HART-MUX**	**Redundancy**	**Type**
Yokogawa	ProSafe-RS	SAV 144	8	9192/32	yes	9195/08H-YO3-02V1

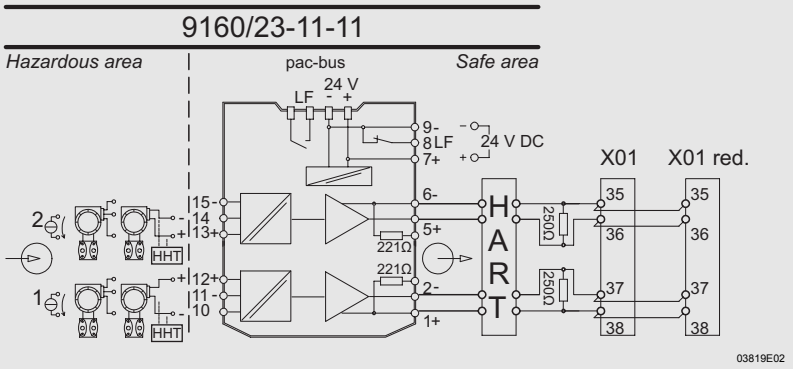
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ⓔx II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	22.8 V ... 25.2 V required by ProSafe-RS
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; T 2,0 A; exchangeable, for primary and redundant supply
Polarity reversal protection	yes
Connection of field devices	
Connection	at the terminals of the I.S. isolators (specification see "signal loops")
Number of channels	16
Connection automation system (X01/DCS)	
Connection	2 x plug 40 pole for KS1 or YUC 40 cable
Number of channels	16 (additional 16 redundant channels available)
HART interface	
Connector X1	HART Connector 14 pole (to HART Multiplexer type 9192/32 or to first pac Carrier)
Error messaging (X31)	
Power fail PF	Contact (35 V / 100 mA), closed in good conditions
Line fail	Contact (35 V / 100 mA), closed in good conditions
Setting switch "SP"	Power failure message suppressed for redundant supply (for single supply)
Setting switch "LFS"	Line fault message suppressed
Ambient conditions	
Ambient temperature	- 20 °C ... + 70 °C (any mounting position, pay attention of the I.S. isolators specification)
Storage temperature range	- 40 °C ... + 80 °C
Relative humidity	≤ 95 %
Mechanical data	
Weight	approx. 320 g
Installation	on DIN rail, EN 50022 (NS35/15; NS35/7.5) or mounting plate (4 x screw M 6)
Mounting position	Vertical or horizontal
Fire protection class (UL-94)	V0

Signal Loops

The diagrams below show typical applications. Please refer to the connection list to get the entire connection scheme.
Basic technical parameters of the ISpac isolating repeaters can be found at the end of this document. The detailed specifications can be downloaded at: www.ispac.info.

Transmitter supply unit (AI)
for 2-, 3-wire transmitter and
mA-sources for 2-wire transmitter
with HART



SIL Specification

ISpac type	Function	SIL	Tested by	Test report number	SFF	PFD	T_{PROOF}
9160/23-11-11.	AI	2	Exida	Stahl 05/08-34 R008 (V2, Rev. R2)	73%	4,64E-04	1
9192/32-10-10.	Hart-Multiplexer	3	Exida	Stahl 04/04-03 R002 (V1, Rev. R1)	91%	1,02E-05	5

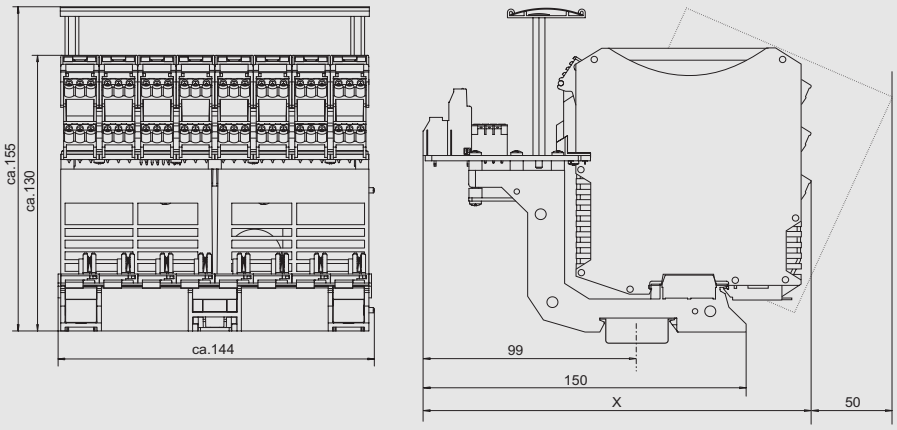
The pac-Carrier type 9195 is considered as wiring within the SIF.

Please note: Avoid to use both channels of the same isolator for redundant structures like 1002, 2003 etc. In this case a common cause factor need to be applied. Alternative: Spread the channels over different isolators.

Accessories and Spare Parts

Designation	Illustration	Description	Order number	Weight kg
Non-Ex i Termination Module	 06314E00	The termination module is used to integrate non-Ex i field circuit into the system integration solution pac-carrier type 9195. In such a way it enables a flexible mixture of Ex i and non-Ex i field circuits.	**9191/20-00-50s**	0.060

Dimension Drawings (All Dimensions in mm) - Subject to Alterations



05177E00

	Dimension x
Screw terminals	176 mm
Cage clamp terminals	186 mm

Please note: In order to snap in the ISpac modules an extra space of approx. 50 mm is required.

Please read the “ISpac engineering guideline“ carefully before you start to engineer the enclosures with incorporated ISpac modules with or without pac-Carriers. The “ISpac engineering guideline“ can be downloaded from: www.ispac.info.

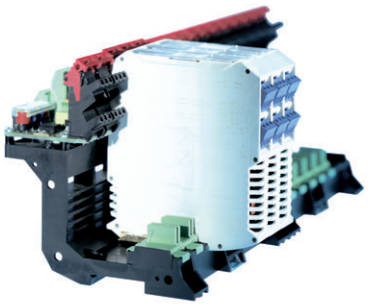
Connection List

terminal i.s. 1)		channel	carrier slot	input no.	pin X01 (STK4A + KS1)		pin X01 red. (STK4A + KS1)	
10	+	1	1	1	+	38	+	38
11	-				-	37	-	37
14	+	2		2	+	36	+	36
15	-				-	35	-	35
10	+	3	2	3	+	34	+	34
11	-				-	33	-	33
14	+	4		4	+	32	+	32
15	-				-	31	-	31
10	+	5	3	5	+	30	+	30
11	-				-	29	-	29
14	+	6		6	+	28	+	28
15	-				-	27	-	27
10	+	7	4	7	+	26	+	26
11	-				-	25	-	25
14	+	8		8	+	24	+	24
15	-				-	23	-	23
10	+	9	5	9	+	22	+	22
11	-				-	21	-	21
14	+	10		10	+	20	+	20
15	-				-	19	-	19
10	+	11	6	11	+	18	+	18
11	-				-	17	-	17
14	+	12		12	+	16	+	16
15	-				-	15	-	15
10	+	13	7	13	+	14	+	14
11	-				-	13	-	13
14	+	14		14	+	12	+	12
15	-				-	11	-	11
10	+	15	8	15	+	10	+	10
11	-				-	9	-	9
14	+	16		16	+	8	+	8
15	-				-	7	-	7

05455E02

1) Different possibilities of field device connections

pac-Carrier
Type 9195/16H-YO3-02V1

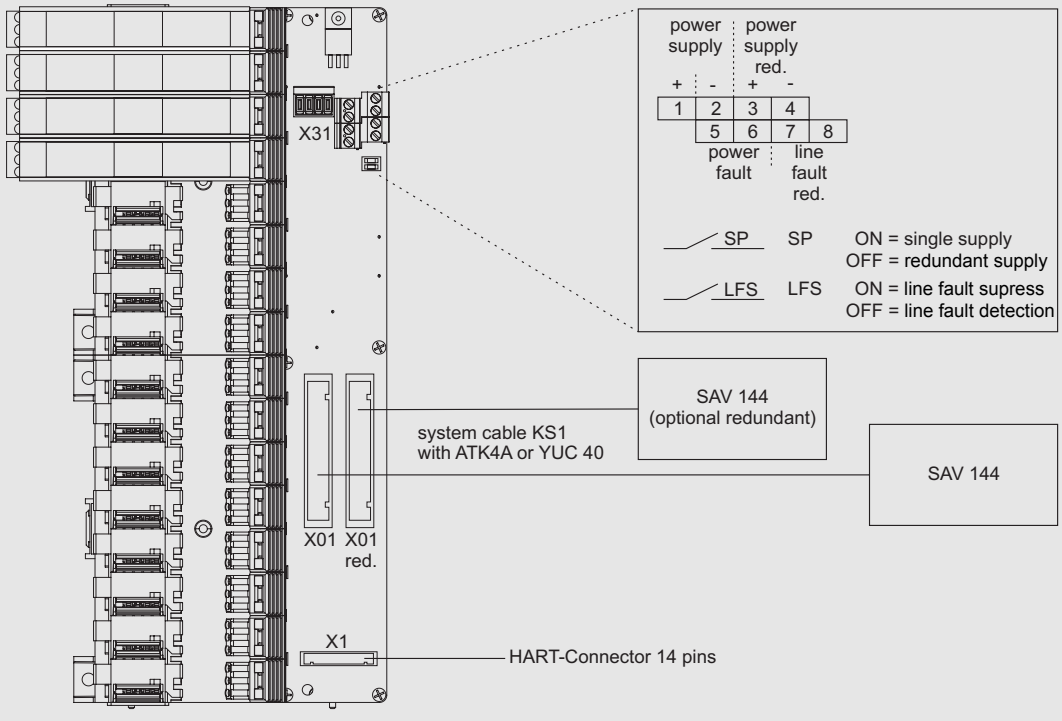


05179E00

- **For Yokogawa / ProSafe-RS / SAV 144**
- Signal types: 16 x AI
- pac-Carrier for 16 modules, i.e. up to 16 signals
- ISpac isolators AI 9160/13-11-11 and 9182/10-51-13 can be used
- Connection to HART-management systems
- Customized system cables type KS1 and adapter ATK4A or YUC 40 to automation system
- Redundant power supply with message contact and exchangeable fuses
- Horizontal or vertical installation
- Simple installation on DIN rail or mounting plate
- Many labeling possibilities
- Fast and secure installation of the isolators without tools
- Comfortable exchange of the isolators with secured ejector mechanism
- Installation possible in Zone 2 and Div. 2

Comfortable and simple integration of the I.S. isolators ISpac into Yokogawa / ProSafe-RS automation systems via system specific connection boards and system cables.

System Overview



05422E02

pac-Carrier Type 9195

Selection Table

Control system			pac-Carrier			
PLS manufacturer	**PLS**	**I/O-cards type**	**Slots**	**HART-MUX**	**Redundancy**	**Type**
Yokogawa	ProSafe-RS	SAV 144	16	9192/32	yes	9195/16H-YO3-02V1

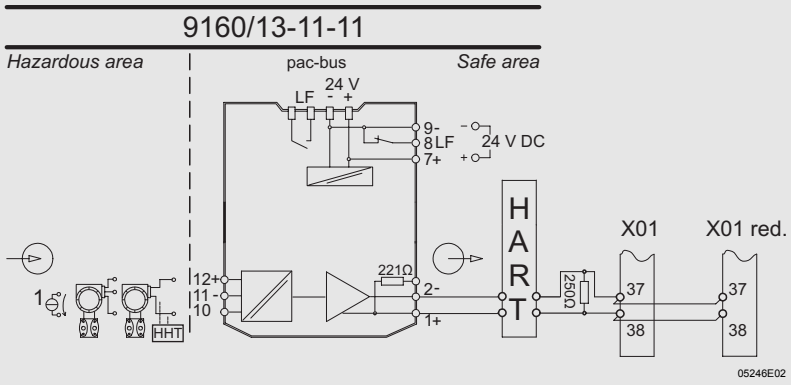
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ⓔx II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	22.8 V ... 25.2 V required by ProSafe-RS
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; T 2,0 A; exchangeable, for primary and redundant supply
Polarity reversal protection	yes
Connection of field devices	
Connection	at the terminals of the I.S. isolators (specification see "signal loops")
Number of channels	16
Connection automation system (X01/DCS)	
Connection	2 x plug 40 pole for KS1 or YUC 40 cable
Number of channels	16 (additional 16 redundant channels available)
HART interface	
Connector X1	HART Connector 14 pole (to HART Multiplexer type 9192/32 or to first pac Carrier)
Error messaging (X31)	
Power fail PF	Contact (35 V / 100 mA), closed in good conditions
Line fail	Contact (35 V / 100 mA), closed in good conditions
Setting switch "SP"	Power failure message suppressed for redundant supply (for single supply)
Setting switch "LFS"	Line fault message suppressed
Ambient conditions	
Ambient temperature	- 20 °C ... + 70 °C (any mounting position, pay attention of the I.S. isolators specification)
Storage temperature range	- 40 °C ... + 80 °C
Relative humidity	≤ 95 %
Mechanical data	
Weight	approx. 610 g
Installation	on DIN rail, EN 50022 (NS35/15; NS35/7.5) or mounting plate (4 x screw M 6)
Mounting position	Vertical or horizontal
Fire protection class (UL-94)	V0

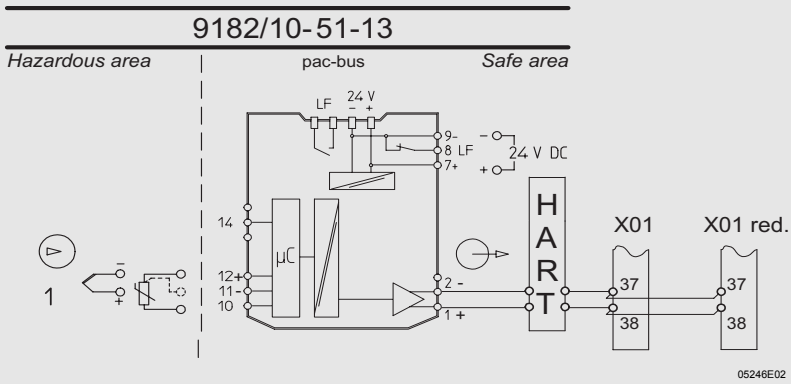
Signal Loops

The diagrams below show typical applications. Please refer to the connection list to get the entire connection scheme.
Basic technical parameters of the ISpac isolating repeaters can be found at the end of this document. The detailed specifications can be downloaded at: www.ispac.info.

Transmitter supply unit (AI)
for 2-, 3-wire transmitter and
mA-sources for 2-wire transmitter
with HART



Temperature Transmitter (AI)
for resistance thermometer,
thermocouple and RTD
(Configuration ISpac Wizard software)
Available April 2009



SIL Specification

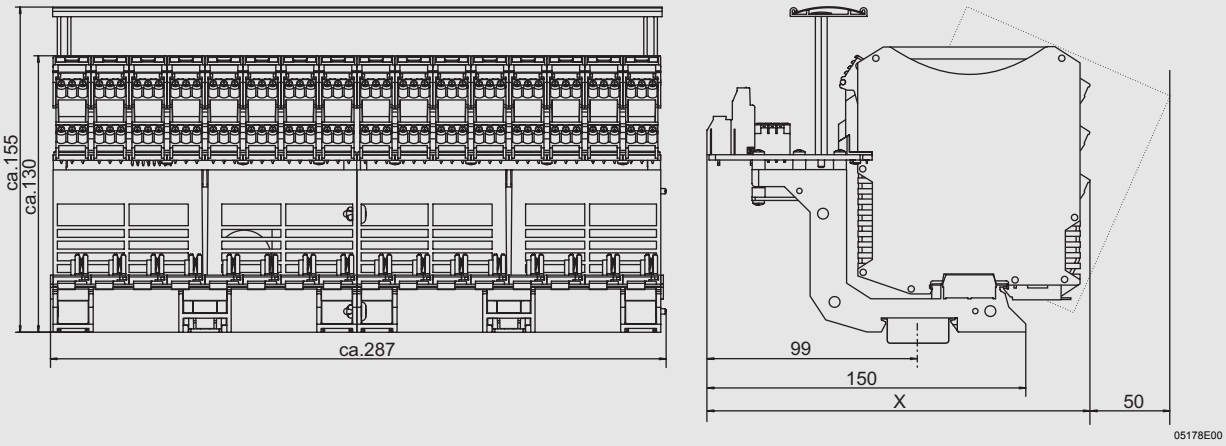
ISpac type	Function	SIL	Tested by	Test report number	SFF	PFD	T_{PROOF}
9182/10-51-13.	Temperature input	2	Exida	Stahl 07/07 R023 (V0, Rev. R1)	78%	7,59E-04	1
9160/13-11-11.	AI	2	Exida	Stahl 05/08-34 R008 (V2, Rev. R2)	73%	4,64E-04	1
9192/32-10-10.	HART-Multiplexer	3	Exida	Stahl 04/04-03 R002 (V1, Rev. R1)	91%	1,02E-05	5

The pac-Carrier type 9195 is considered as wiring within the SIF.

Accessories and Spare Parts

Designation	Illustration	Description	Order number	Weight kg
Non-Ex i Termination Module	 06314E00	The termination module is used to integrate non-Ex i field circuit into the system integration solution pac-carrier type 9195. In such a way it enables a flexible mixture of Ex i and non-Ex i field circuits.	**9191/20-00-50s**	0.060

Dimension Drawings (All Dimensions in mm) - Subject to Alterations



	Dimension x
Screw terminals	176 mm
Cage clamp terminals	186 mm

Please note: In order to snap in the ISpac modules an extra space of approx. 50 mm is required.

Please read the “ISpac engineering guideline“ carefully before you start to engineer the enclosures with incorporated ISpac modules with or without pac-Carriers. The “ISpac engineering guideline“ can be downloaded from: www.ispac.info.

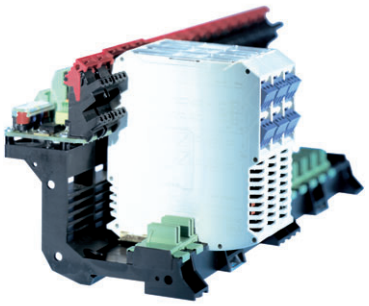
Connection List

terminal i.s. 1)		channel	carrier slot	input no.	pin X01 (STK4A + KS1)		pin X01 red. (STK4A + KS1)	
10	+	1	1	1	+	38	+	38
11	-				-	37	-	37
14	+	2	2	2	+	36	+	36
15	-				-	35	-	35
10	+	3	3	3	+	34	+	34
11	-				-	33	-	33
14	+	4	4	4	+	32	+	32
15	-				-	31	-	31
10	+	5	5	5	+	30	+	30
11	-				-	29	-	29
14	+	6	6	6	+	28	+	28
15	-				-	27	-	27
10	+	7	7	7	+	26	+	26
11	-				-	25	-	25
14	+	8	8	8	+	24	+	24
15	-				-	23	-	23
10	+	9	9	9	+	22	+	22
11	-				-	21	-	21
14	+	10	10	10	+	20	+	20
15	-				-	19	-	19
10	+	11	11	11	+	18	+	18
11	-				-	17	-	17
14	+	12	12	12	+	16	+	16
15	-				-	15	-	15
10	+	13	13	13	+	14	+	14
11	-				-	13	-	13
14	+	14	14	14	+	12	+	12
15	-				-	11	-	11
10	+	15	15	15	+	10	+	10
11	-				-	9	-	9
14	+	16	16	16	+	8	+	8
15	-				-	7	-	7

05424E02

1) Different possibilities of field device connections

pac-Carrier Type 9195/08A-YO3-03A2

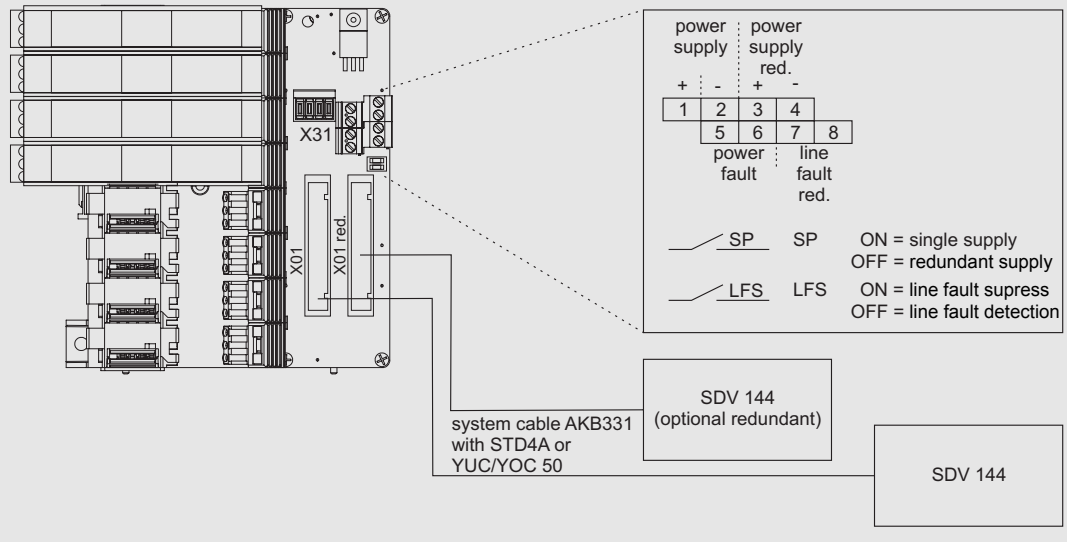


05179E00

- **For Yokogawa / ProSafe-RS / SDV 144**
- Signal types: 16 x DI
- pac-Carrier for 8 modules, i.e. up to 16 signals
- ISpac isolators DI 9170/20-11-11, 9170/20-14-11 or 9170/20-14-12 (LFT) can be used
- Customized system cables type AKB331, YUC 50 to automation system
- Redundant power supply with message contact and exchangeable fuses
- Horizontal or vertical installation
- Simple installation on DIN rail or mounting plate
- Many labeling possibilities
- Fast and secure installation of the isolators without tools
- Comfortable exchange of the isolators with secured ejector mechanism
- Installation possible in Zone 2 and Div. 2

Comfortable and simple integration of the I.S. isolators ISpac into Yokogawa / ProSafe-RS automation systems via system specific connection boards and system cables.

System Overview



05392E02

pac-Carrier Type 9195

Selection Table

Control system			pac-Carrier			
PLS manufacturer	**PLS**	**I/O-cards type**	**Slots**	**HART-MUX**	**Redundancy**	**Type**
Yokogawa	ProSafe-RS	SDV 144	8	no	yes	9195/08A-YO3-03A2

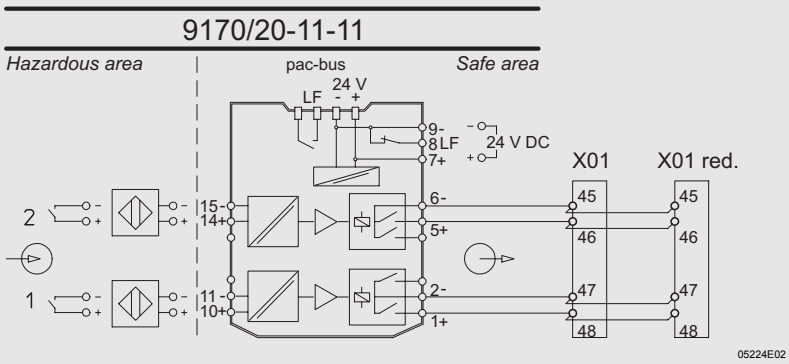
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ⓔx II 3 G Ex nA nC II T4
Installation	in Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	22.8 V ... 25.2 V required by ProSafe-RS
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; T 2.0 A; exchangeable, for primary and redundant supply
Polarity reversal protection	yes
Connection of field devices	
Connection	at the terminals of the I.S. isolators (specification see "signal loops")
Number of channels	16
Connection automation system (X01, X01 red.)	
Connection	2 x plug 50 pole for AKB331 or YUC 50 cable
Number of channels	16 (additional 16 redundant channels available)
Error messaging (X31)	
Power fail PF	Contact (35 V / 100 mA), closed in good conditions
Line fail	Contact (35 V / 100 mA), closed in good conditions
Setting switch "SP"	Power failure message suppressed for redundant supply (for single supply)
Setting switch "LFS"	Line fault message suppressed
Ambient conditions	
Ambient temperature	- 20 °C ... + 70 °C (any mounting position, pay attention of the I.S. isolators specification)
Storage temperature range	- 40 °C ... + 80 °C
Relative humidity	≤ 95 %
Mechanical data	
Weight	approx. 320 g
Installation	on DIN rail, EN 50022 (NS35/15; NS35/7.5) or mounting plate (4 x screw M 6)
Mounting position	Vertical or horizontal
Fire protection class (UL-94)	V0

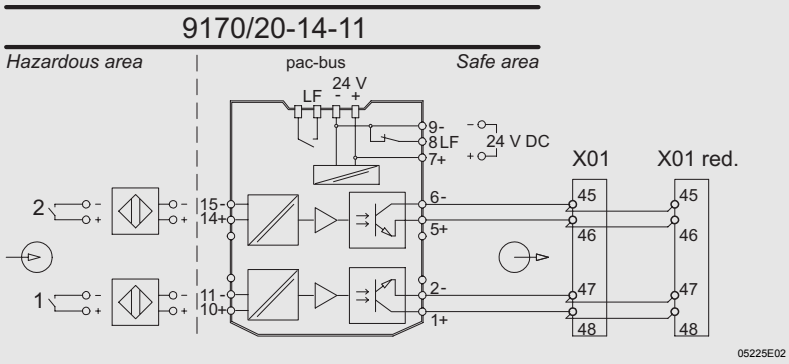
Signal Loops

The diagrams below show typical applications. Please refer to the connection list to get the entire connection scheme.
Basic technical parameters of the ISpac isolating repeaters can be found at the end of this document. The detailed specifications can be downloaded at: www.ispac.info.

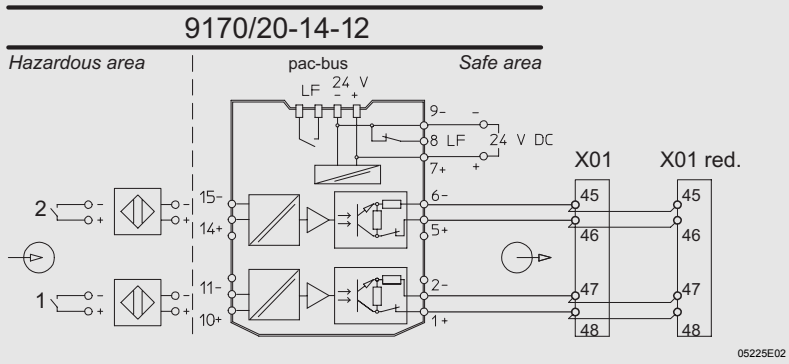
Switching repeater (DI)
for NAMUR proximity switches and contacts
- relay output



Switching repeater (DI)
for NAMUR proximity switches and contacts
- electronic output



Switching repeater (DI)
with Line Fault Transparency (LFT)
for NAMUR proximity switches and contacts
- electronic output



SIL Specification

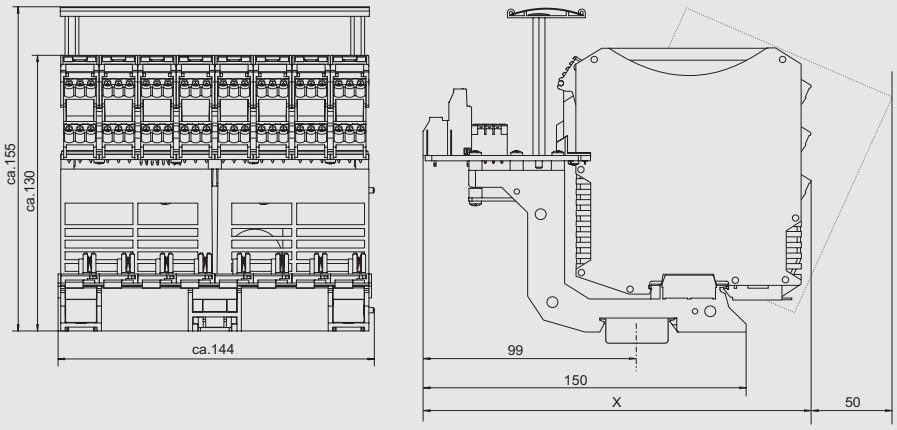
ISpac type	Function	SIL	Tested by	Test report number	SFF	PFD	T_{PROOF}
9170/20-11-11.	DI	2	Exida	Stahl 05/08-34R009 (V2, Rev. R1)	88%	1,14E-04	1
9170/20-14-11.	DI	2	Exida	Stahl 05/08-34R009 (V2, Rev. R1)	89%	1,25E-04	1
9170/20-14-12.	DI	2	Exida	Stahl 05/08-34R009 (V2, Rev. R1)	97%	1,25E-04	1

Please note: Avoid to use both channels of the same isolator for redundant structures like 1002, 2003 etc. In this case a common cause factor need to be applied. Alternative: Spread the channels over different isolators.

Accessories and Spare Parts

Designation	Illustration	Description	Order number	Weight kg
Non-Ex i Termination Module	 06314E00	The termination module is used to integrate non-Ex i field circuit into the system integration solution pac-carrier type 9195. In such a way it enables a flexible mixture of Ex i and non-Ex i field circuits.	**9191/20-00-50s**	0.060

Dimension Drawings (All Dimensions in mm) - Subject to Alterations



05177E00

	Dimension x
Screw terminals	176 mm
Cage clamp terminals	186 mm

Please note: In order to snap in the ISpac modules an extra space of approx. 50 mm is required.

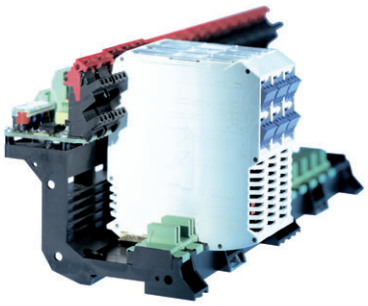
Please read the “ISpac engineering guideline“ carefully before you start to engineer the enclosures with incorporated ISpac modules with or without pac-Carriers. The “ISpac engineering guideline“ can be downloaded from: www.ispac.info.

Connection List

terminal i.s.		channel	carrier slot	in-/output no.	pin X01 (STD4A + AKB331)		pin X01 red. (STD4A + AKB331)	
10	+	1	1	1	+	48	+	48
11	-				-	47	-	47
14	+	2		2	+	46	+	46
15	-				-	45	-	45
10	+	3	2	3	+	44	+	44
11	-				-	43	-	43
14	+	4		4	+	42	+	42
15	-				-	41	-	41
10	+	5	3	5	+	40	+	40
11	-				-	39	-	39
14	+	6		6	+	38	+	38
15	-				-	37	-	37
10	+	7	4	7	+	36	+	36
11	-				-	35	-	35
14	+	8		8	+	34	+	34
15	-				-	33	-	33
10	+	9	5	9	+	32	+	32
11	-				-	31	-	31
14	+	10		10	+	30	+	30
15	-				-	29	-	29
10	+	11	6	11	+	28	+	28
11	-				-	27	-	27
14	+	12		12	+	26	+	26
15	-				-	25	-	25
10	+	13	7	13	+	24	+	24
11	-				-	23	-	23
14	+	14		14	+	22	+	22
15	-				-	21	-	21
10	+	15	8	15	+	20	+	20
11	-				-	19	-	19
14	+	16		16	+	18	+	18
15	-				-	17	-	17

05314E02

pac-Carrier Type 9195/16A-YO3-03A2

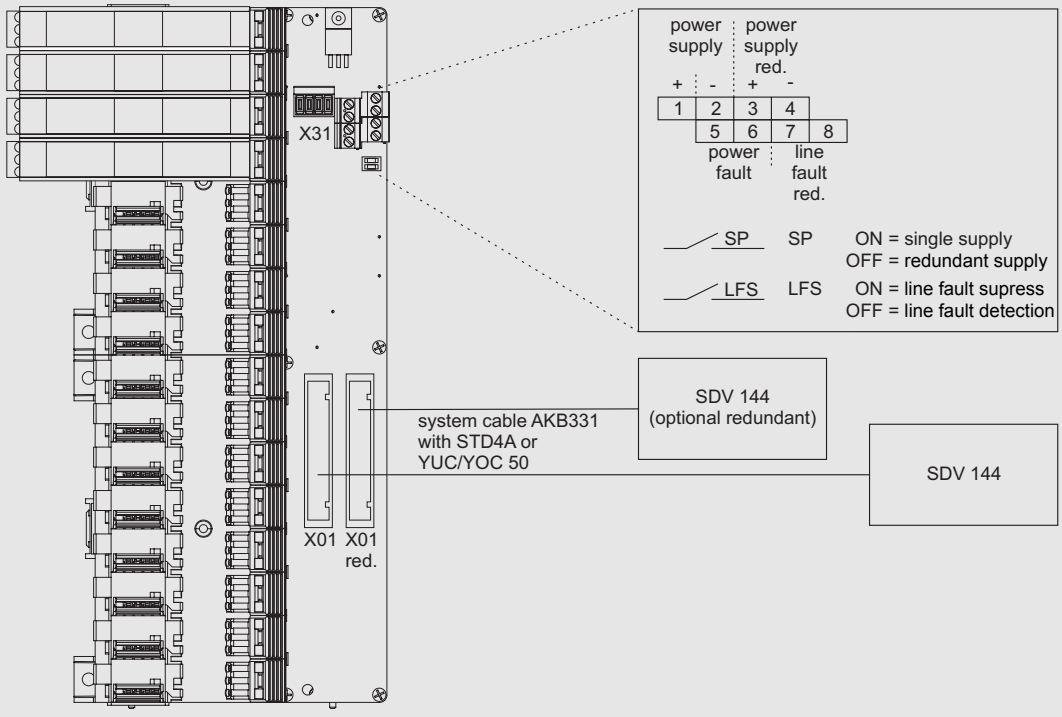


05179E00

- **For Yokogawa / ProSafe-RS / SDV 144**
- Signal types: 16 x DI
- pac-Carrier for 16 modules, i.e. up to 16 signals
- ISpac isolators DI 9170/10-14-11, 9170/10-11-11 or 9170/10-14-12 (LFT) can be used
- Customized system cables type AKB331 or YUC 50 to automation system
- Redundant power supply with message contact and exchangeable fuses
- Horizontal or vertical installation
- Simple installation on DIN rail or mounting plate
- Many labeling possibilities
- Fast and secure installation of the isolators without tools
- Comfortable exchange of the isolators with secured ejector mechanism
- Installation possible in Zone 2 and Div. 2

Comfortable and simple integration of the I.S. isolators ISpac into Yokogawa / ProSafe-RS automation systems via system specific connection boards and system cables.

System Overview



05347E02

pac-Carrier Type 9195

Selection Table

Control system			pac-Carrier			
PLS manufacturer	**PLS**	**I/O-cards type**	**Slots**	**HART-MUX**	**Redundancy**	**Type**
Yokogawa	ProSafe-RS	SDV 144	16	no	yes	9195/16A-YO3-03A2

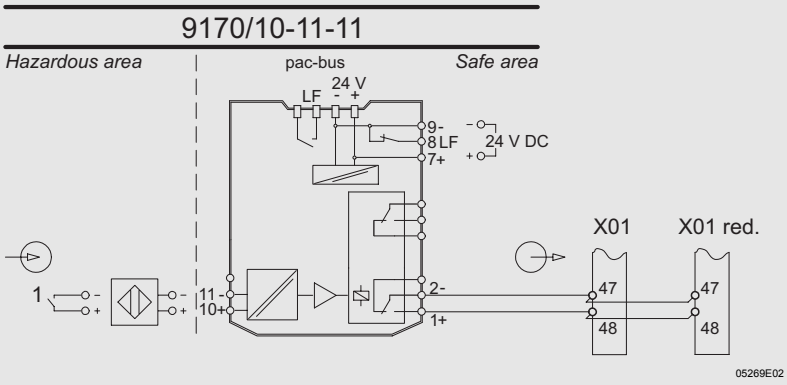
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ⓔx II 3 G Ex nA nC II T4
Installation	in Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	22.8 V ... 25.2 V required by ProSafe-RS
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; T 2.0 A; exchangeable, for primary and redundant supply
Polarity reversal protection	yes
Connection of field devices	
Connection	at the terminals of the I.S. isolators (specification see "signal loops")
Number of channels	16
Connection automation system (X01, X01 red.)	
Connection	2 x plug 50 pole for AKB331 or YUC 50 cable
Number of channels	16 (additional 16 redundant channels available)
Error messaging (X31)	
Power fail PF	Contact (35 V / 100 mA), closed in good conditions
Line fail	Contact (35 V / 100 mA), closed in good conditions
Setting switch "SP"	Power failure message suppressed for redundant supply (for single supply)
Setting switch "LFS"	Line fault message suppressed
Ambient conditions	
Ambient temperature	- 20 °C ... + 70 °C (any mounting position, pay attention of the I.S. isolators specification)
Storage temperature range	- 40 °C ... + 80 °C
Relative humidity	≤ 95 %
Mechanical data	
Weight	approx. 610 g
Installation	on DIN rail, EN 50022 (NS35/15; NS35/7.5) or mounting plate (4 x screw M 6)
Mounting position	Vertical or horizontal
Fire protection class (UL-94)	V0

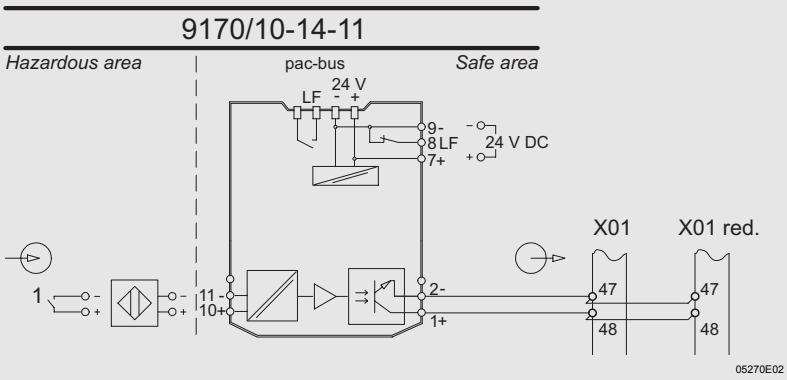
Signal Loops

The diagrams below show typical applications. Please refer to the connection list to get the entire connection scheme.
Basic technical parameters of the ISpac isolating repeaters can be found at the end of this document. The detailed specifications can be downloaded at: www.ispac.info.

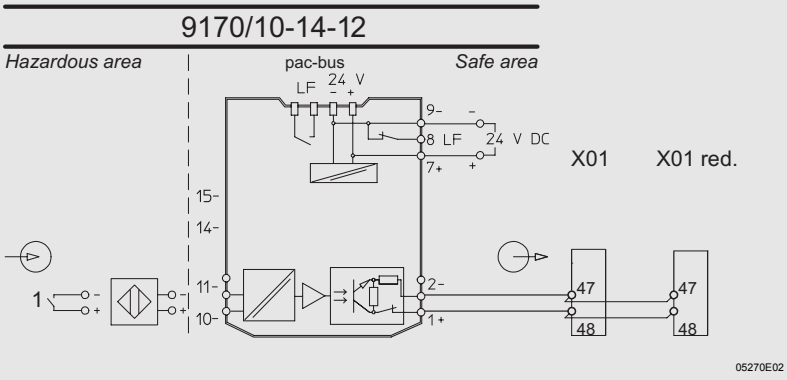
Switching repeater (DI)
for NAMUR proximity switches and contacts
- relay output



Switching repeater (DI)
for NAMUR proximity switches and contacts
- electronic output



Switching repeater (DI)
with Line Fault Transparency (LFT)
for NAMUR proximity switches and contacts
- electronic output



SIL Parameters

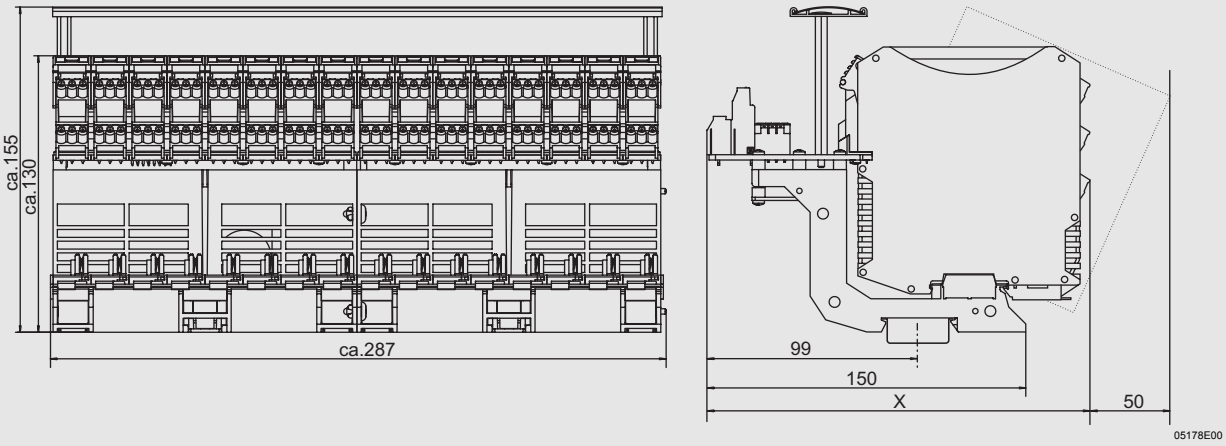
ISpac type	Function	SIL	Tested by	Test report number	SFF	PFD	T_{PROOF}
9170/10-11-11.	DI	2	Exida	Stahl 05/08-34R009 (V2, Rev. R1)	88%	1,14E-04	1
9170/10-14-11.	DI	2	Exida	Stahl 05/08-34R009 (V2, Rev. R1)	89%	1,25E-04	1
9170/10-14-12.	DI	2	Exida	Stahl 05/08-34R009 (V2, Rev. R1)	89%	6,25E-04	5

Please note: Avoid to use both channels of the same isolator for redundant structures like 1002, 2003 etc. In this case a common cause factor need to be applied. Alternative: Spread the channels over different isolators.

Accessories and Spare Parts

Designation	Illustration	Description	Order number	Weight kg
Non-Ex i Termination Module	 06314E00	The termination module is used to integrate non-Ex i field circuit into the system integration solution pac-carrier type 9195. In such a way it enables a flexible mixture of Ex i and non-Ex i field circuits.	**9191/20-00-50s**	0.060

Dimension Drawings (All Dimensions in mm) - Subject to Alterations



	Dimension x
Screw terminals	176 mm
Cage clamp terminals	186 mm

Please note: In order to snap in the ISpac modules an extra space of approx. 50 mm is required.

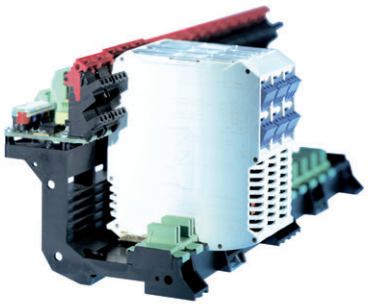
Please read the “ISpac engineering guideline“ carefully before you start to engineer the enclosures with incorporated ISpac modules with or without pac-Carriers. The “ISpac engineering guideline“ can be downloaded from: www.ispac.info.

Connection List

terminal i.s.		channel	carrier slot	in-/output no.	pin X01 (STD4A + AKB331)		pin X01 red. (STD4A + AKB331)	
10	+	1	1	1	+	48	+	48
11	-				-	47	-	47
14	+	2		2	+	46	+	46
15	-				-	45	-	45
10	+	3	2	3	+	44	+	44
11	-				-	43	-	43
14	+	4		4	+	42	+	42
15	-				-	41	-	41
10	+	5	3	5	+	40	+	40
11	-				-	39	-	39
14	+	6		6	+	38	+	38
15	-				-	37	-	37
10	+	7	4	7	+	36	+	36
11	-				-	35	-	35
14	+	8		8	+	34	+	34
15	-				-	33	-	33
10	+	9	5	9	+	32	+	32
11	-				-	31	-	31
14	+	10		10	+	30	+	30
15	-				-	29	-	29
10	+	11	6	11	+	28	+	28
11	-				-	27	-	27
14	+	12		12	+	26	+	26
15	-				-	25	-	25
10	+	13	7	13	+	24	+	24
11	-				-	23	-	23
14	+	14		14	+	22	+	22
15	-				-	21	-	21
10	+	15	8	15	+	20	+	20
11	-				-	19	-	19
14	+	16		16	+	18	+	18
15	-				-	17	-	17

05325E02

pac-Carrier
Type 9195/08A-YO3-04A2

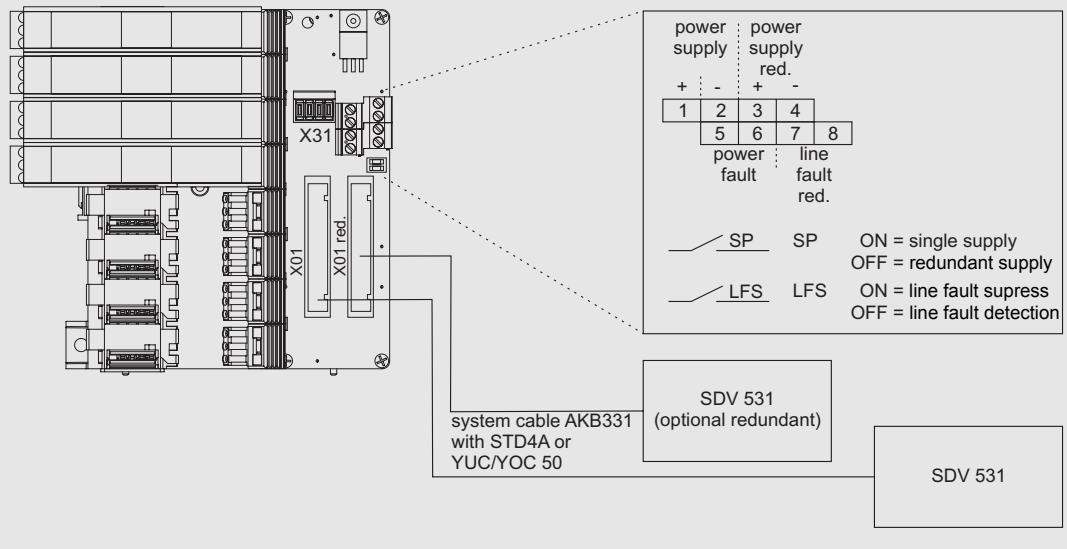


05179E00

- **For Yokogawa / ProSafe-RS / SDV 531**
- Signal types: 8 x DO
- pac-Carrier for 8 modules, i.e. up to 8 signals
- ISpac isolators DO 9175/10-1.-11, 9175/10-1.-12 (LFT) or 9175/10-1.-00 can be used
- Customized system cables type AKB331, YUC/YOC 50 to automation system
- Redundant power supply with message contact and exchangeable fuses
- Horizontal or vertical installation
- Simple installation on DIN rail or mounting plate
- Many labeling possibilities
- Fast and secure installation of the isolators without tools
- Comfortable exchange of the isolators with secured ejector mechanism
- Installation possible in Zone 2 and Div. 2

Comfortable and simple integration of the I.S. isolators ISpac into Yokogawa / ProSafe-RS automation systems via system specific connection boards and system cables.

System Overview



05393E02

pac-Carrier Type 9195

Selection Table

Control system			pac-Carrier			
PLS manufacturer	**PLS**	**I/O-cards type**	**Slots**	**HART-MUX**	**Redundancy**	**Type**
Yokogawa	ProSafe-RS	SDV 531	8	no	yes	9195/08A-YO3-04A2

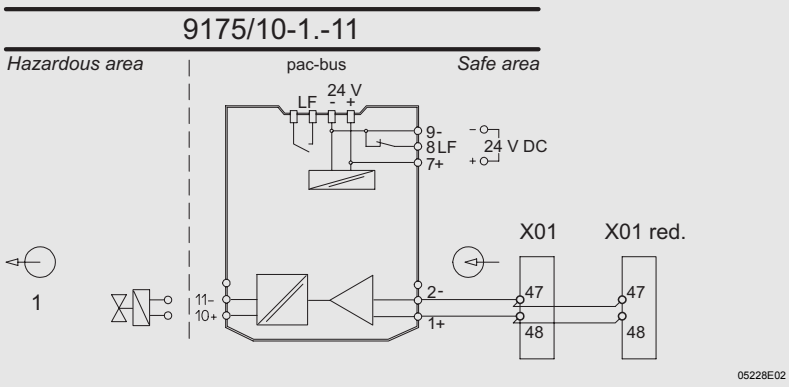
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ⓔx II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	22.8 V ... 25.2 V required by ProSafe-RS
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; T 2,0 A; exchangeable, for primary and redundant supply
Polarity reversal protection	yes
Connection of field devices	
Connection	at the terminals of the I.S. isolators (specification see "signal loops")
Number of channels	8
Connection automation system (X01, X01 red.)	
Connection	2 x plug 50 pole for KS1 or YUC/YOC 50 cable
Number of channels	8 (additional 8 redundant channels available)
Error messaging (X31)	
Power fail PF	Contact (35 V / 100 mA), closed in good conditions
Line fail	Contact (35 V / 100 mA), closed in good conditions
Setting switch "SP"	Power failure message suppressed for redundant supply (for single supply)
Setting switch "LFS"	Line fault message suppressed
Ambient conditions	
Ambient temperature	- 20 °C ... + 70 °C (any mounting position, pay attention of the I.S. isolators specification)
Storage temperature range	- 40 °C ... + 80 °C
Relative humidity	≤ 95 %
Mechanical data	
Weight	approx. 320 g
Installation	on DIN rail, EN 50022 (NS35/15; NS35/7.5) or mounting plate (4 x screw M 6)
Mounting position	Vertical or horizontal
Fire protection class (UL-94)	V0

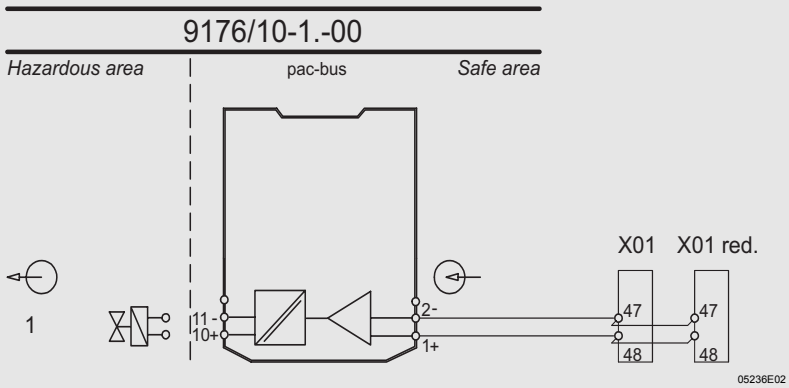
Signal Loops

The diagrams below show typical applications. Please refer to the connection list to get the entire connection scheme.
Basic technical parameters of the ISpac isolating repeaters can be found at the end of this document. The detailed specifications can be downloaded at: www.ispac.info.

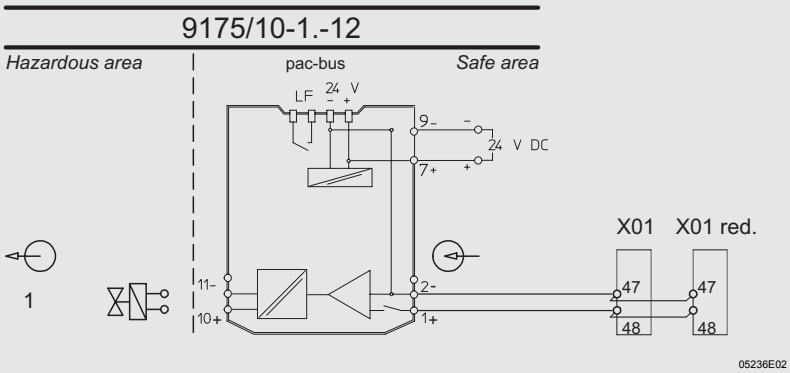
Digital Output (DO)
for solenoid valves and indicators



Digital Output (DO)
for solenoid valves and indicators



Digital Output (DO)
with Line Fault Transparency (LFT)
For solenoid valves and indicators



The selected version of the loop-powered binary output depends on the fild device to be connected. Please use the compatibility spread shut available for download on the ISpac webpage (www.ispac.info) subchapter “engineering“
Please note that the line fault detection of the ProSafe system need to be deactivated. The line fault is not necessary for SIF.

SIL Specification

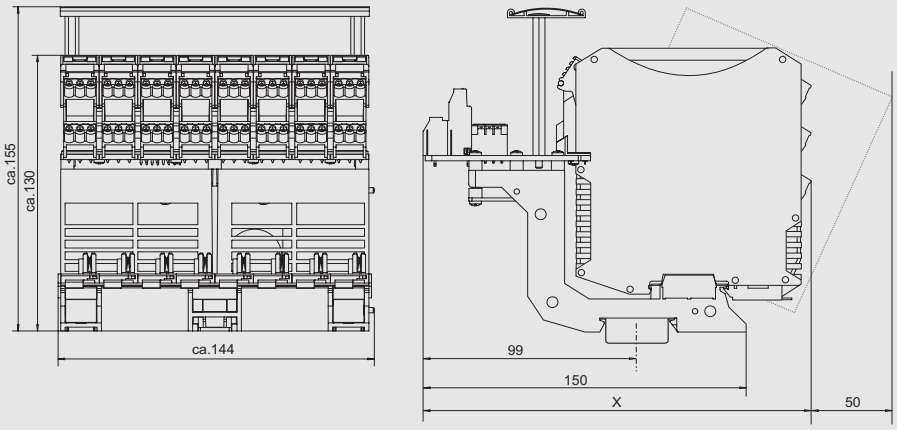
ISpac type	Function	SIL	Tested by	Test report number	SFF	PFD	T_{PROOF}
9175/10-1.-11.	DO	3	Exam	PB06/04X (11.07.05)	99%	8,12E-05	3
9176/10-1.-00.	DO	4	Exida	Stahl 04/04-03 R003 (V1, Rev. R0)	100%	0,00E+00	10
9175/10-1.-12.	DO	2	Exida	Stahl 04/04-03 R002 (V2, Rev. R1)	97%	8,76E-04	10

The pac-Carrier type 9195 is considered as wiring within the SIF.

Accessories and Spare Parts

Designation	Illustration	Description	Order number	Weight kg
Non-Ex i Termination Module	 06314E00	The termination module is used to integrate non-Ex i field circuit into the system integration solution pac-carrier type 9195. In such a way it enables a flexible mixture of Ex i and non-Ex i field circuits.	**9191/20-00-50s**	0.060

Dimension Drawings (All Dimensions in mm) - Subject to Alterations



05177E00

	Dimension x
Screw terminals	176 mm
Cage clamp terminals	186 mm

Please note: In order to snap in the ISpac modules an extra space of approx. 50 mm is required.

Please read the “ISpac engineering guideline“ carefully before you start to engineer the enclosures with incorporated ISpac modules with or without pac-Carriers. The “ISpac engineering guideline“ can be downloaded from: www.ispac.info.

Connection List

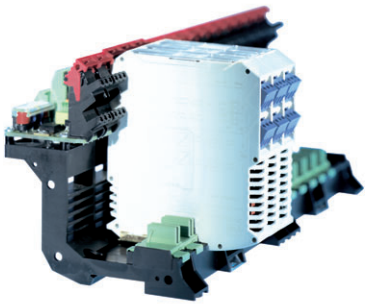
terminal i.s. 1)		channel	carrier slot	input no.	pin X01 (STD4A + AKB331)		pin X01 red. (STD4A + AKB331)	
10	+	1	1	1	+	48	+	48
11	-				-	47	-	47
10	+	2	2	2	+	46	+	46
11	-				-	45	-	45
10	+	3	3	3	+	44	+	44
11	-				-	43	-	43
10	+	4	4	4	+	42	+	42
11	-				-	41	-	41
10	+	5	5	5	+	40	+	40
11	-				-	39	-	39
10	+	6	6	6	+	38	+	38
11	-				-	37	-	37
10	+	7	7	7	+	36	+	36
11	-				-	35	-	35
10	+	8	8	8	+	34	+	34
11	-				-	33	-	33

05315E02

1) digital output: 9175/10-12-11 (1 ch.) or 9175/10-14-11 (1 ch.) or 9175/10-16-11 (1 ch.) or 9176/10-12-00 (1 ch.) or 9176/10-14-00 (1 ch.) or 9176/10-16-00 (1 ch.)

pac-Carrier Type 9195/08A-YO3-05A2

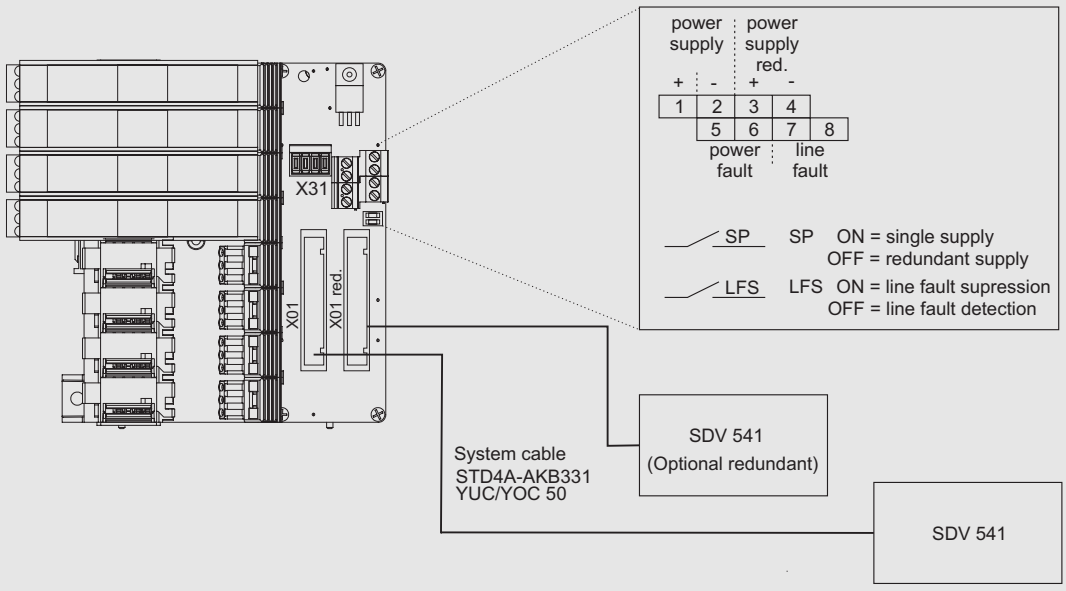
- **For Yokogawa / ProSafe-RS / SDV 541**
- Signal types: 16 x DO
- pac-Carrier for 8 modules, i.e. up to 16 signals
- ISpac isolators DO 9176./20-1.-00 and 9172/21-11-00 can be used
- Customized system cables type STD4A-AKB331 / YUC / YOC 50 to automation systems
- Redundant power supply with message contact and exchangeable fuses
- Horizontal or vertical installation
- Simple installation on DIN rail or mounting plate
- Many labeling possibilities
- Fast and secure installation of the isolators without tools
- Comfortable exchange of the isolators with secured ejector mechanism
- Installation possible in Zone 2 and Div. 2



05179E00

Comfortable and simple integration of the Exi isolators ISpac into Yokogawa / ProSafe-RS system via system specific connection boards and system cables.

System Overview



05392E02

pac-Carrier Type 9195

Selection Table

Control system			pac-Carrier			
PLS manufacturer	**PLS type**	**I/O-cards type**	**Slots**	**HART-MUX**	**Redundancy**	**Type**
Yokogawa	ProSafe-RS	SDV 541	8	-	yes	9195/08A-YO3-05A2

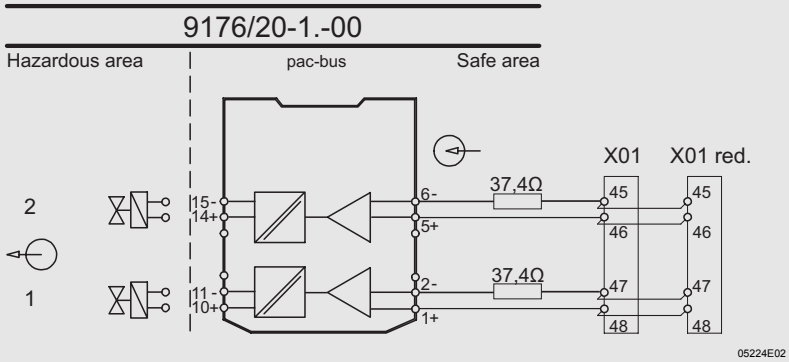
Technical Data

Certificates	BVS 03 ATEX E213 X
Explosion protection	Ⓔx II 3 G Ex nA nC II T4
Installation	in Zone 2, Div. 2 and in the safe area
Power supply	(X31)
Nominal voltage	24 V DC (19 V ... 31,2 V)
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; T 2.0 A; exchangeable, for primary and redundant supply
Polarity reversal protection	yes
Connection of field devices	
Connection	at the terminals of the I.S. isolators
Number of channels	16
Connection automation system	(X01, X01 red.)
Connection	2 x plug 50 pole for AKB331 or YUC/YOC 50 cable
Number of channels	16 (additionally 16 redundant channels available)
Error messaging	
Power supply failure PF	Contact (35 V / 100 mA), closed in good conditions
Line fault LF (of IS pac modules)	Contact (35 V / 100 mA), closed in good conditions
Setting switch "SP"	Power failure message suppressed for redundant supply (single supply)
Setting switch "LFS"	Line fault message suppressed
Ambient conditions	
Ambient temperature	- 20 °C ... + 70 °C (see specification of I.S. isolatiors)
Storage temperature range	- 40 °C ... + 80 °C
Relative humidity	≤ 95 %
Mechanical data	
Weight	approx. 320 g
Mounting type	on DIN rail, EN 50022 (NS35/15; NS35/7.5) or mounting plate (4 x screw M 6)
Mounting position	horizontal or vertical
Casing / terminal protection class	IP00 / IP20
Casing material	PA 6.6
Fire protection class (UL-94)	V0

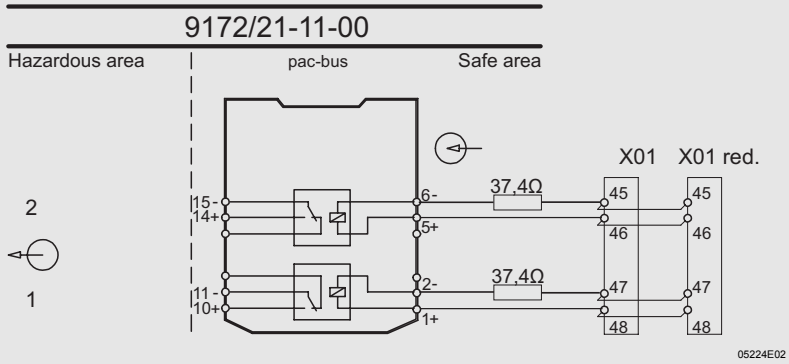
Signal Loops

The diagrams below show typical applications. Please refer to the connection list to get the entire connection scheme.
The detailed specifications of the ISpac isolating can be downloaded at: www.ispac.info.

Digital Output (DO)
for solenoid valves and indicators



Digital Output (DO)
for Non-Ex i Achtivation / Ex i Contact



The selected version of the loop-powered binary output is based on the field device to be connected.
Please use the compability spreadsheet available on the ISpac webpage, subchapter “engineering“.

Please note that the line fault detection of the ProSafe system need to be deactivated. The line fault detection is not necessary for the SIF.

SIL Specification

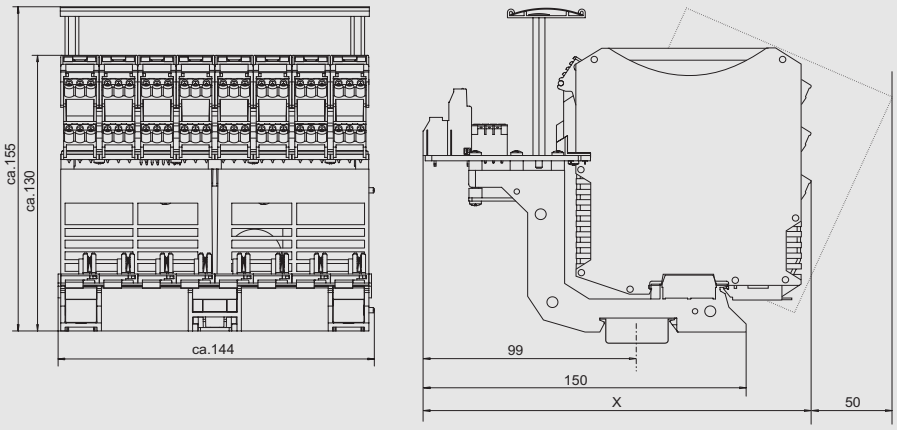
ISpac type	Function	SIL	Tested by	Test report number	SFF	PFD	T_{PROOF}
9176	DO	2	Exida	Stahl 04/04-03 R003 (V1, Rev. R0)	100%	0,00E+00	10
9172	DO	2	Exida	Stahl 04/04-03 R003 (V1, Rev. R0)	75,6%	5,60E-04	5

The pac-Carrier-type 9195 is considered as wiring within the SIF.

Accessories and Spare Parts

Designation	Illustration	Description	Order number	Weight kg
Non-Ex i Termination Module	 06314E00	The termination module is used to integrate non-Ex i field circuit into the system integration solution pac-carrier type 9195. In such a way it enables a flexible mixture of Ex i and non-Ex i field circuits.	**9191/20-00-50s**	0.060

Dimension Drawings (All Dimensions in mm) - Subject to Alterations



05177E00

	Dimension x
Screw terminals	176 mm
Cage clamp terminals	186 mm

Please note: In order to snap in the ISpac modules an extra space of approx. 50 mm is required.

Please read the “ISpac engineering guideline“ carefully before you start to engineer the enclosures with incorporated ISpac modules with or without pac-Carriers. The “ISpac engineering guideline“ can be downloaded from: www.ispac.info.

Connection list

terminal i.s.		channel	carrier slot	in-/output no.	pin X01 (STD4A + AKB331)		pin X01 red. (STD4A + AKB331)	
10	+	1	1	1	+	48	+	48
11	-				-	47	-	47
14	+	2		2	+	46	+	46
15	-				-	45	-	45
10	+	3	2	3	+	44	+	44
11	-				-	43	-	43
14	+	4		4	+	42	+	42
15	-				-	41	-	41
10	+	5	3	5	+	40	+	40
11	-				-	39	-	39
14	+	6		6	+	38	+	38
15	-				-	37	-	37
10	+	7	4	7	+	36	+	36
11	-				-	35	-	35
14	+	8		8	+	34	+	34
15	-				-	33	-	33
10	+	9	5	9	+	32	+	32
11	-				-	31	-	31
14	+	10		10	+	30	+	30
15	-				-	29	-	29
10	+	11	6	11	+	28	+	28
11	-				-	27	-	27
14	+	12		12	+	26	+	26
15	-				-	25	-	25
10	+	13	7	13	+	24	+	24
11	-				-	23	-	23
14	+	14		14	+	22	+	22
15	-				-	21	-	21
10	+	15	8	15	+	20	+	20
11	-				-	19	-	19
14	+	16		16	+	18	+	18
15	-				-	17	-	17

05314E02

EUROPA / AFRIKA
EUROPE / AFRICA

Deutschland / *Germany*
R. STAHL Schaltgeräte GmbH
Niederlassung Nord
Grusonstr. 55
22113 Hamburg
Tel. +49 40 736054-0
Fax +49 40 736054-54
Email: info.ex@stahl.de
Internet: www.stahl.de

R. STAHL Schaltgeräte GmbH
Niederlassung West
Brügelmannstr. 5
50679 Köln
Tel. +49 221 962569-0
Fax +49 221 962569-25
Email:info.ex@stahl.de
Internet: www.stahl.de

R. STAHL Schaltgeräte GmbH
Niederlassung Süd
Am Bahnhof 30
74638 Waldenburg
Tel. +49 7942 943-0
Fax +49 7942 943-1777
Email: info.ex@stahl.de
Internet: www.stahl.de

R. STAHL HMI Systems GmbH
Im Gewerbegebiet Pesch 14
50767 Köln
Tel. +49 221 59808-200
Fax +49 221 59808-260
Email: office@stahl-hmi.de
Internet: www.stahl-hmi.de

Ägypten / *Egypt*
Eagle Co. (S.A.E.)
23, Fawzy Moaaz Str.
432 Alexandria
Tel. +20 3 4257011
Fax +20 3 4257061, 4257079
Email: eagle.co@tedata.net.eg

Aserbaidschan / *Azerbaijan*
SIRIUS Construction
93, Nizamy St.
1000 Baku
Tel. +994 12 4931820
Fax +994 12 4985331
Email: sirius_c@azeurotel.com

Belgien / *Belgium*
STAHL N.V.
Sint Gillislaan 6, bus 3
9200 Sint Gillis - Dendermonde
Tel. +32 52 211351
Fax +32 52 211347
Email: mail@stahl.be

Bulgarien / *Bulgaria*
Telecon Co.
29, Ilijantzi Bldv.
Sofia 1220
Tel. +359 2 8130813
Fax +359 2 8130815
Email:sa@telecon-co.com

◆**Dänemark / *Denmark***
MAX FODGAARD A/S
Sydholmen 10
2650 Hvidovre
Tel. +45 70261700
Fax +45 70263110
Email: max@fodgaard.dk
Internet: www.fodgaard.dk

Estland / *Estonia*
Talger-ElektrotehnicA OÜ
Laki 15
12915 Tallinn
Tel. +372 6838800
Fax +372 6838810
Email: talger@talger.ee
Internet: www.talger.ee

◆**Finnland / *Finland***
EX-TEKNIIKKA OY
Sörnäisten Rantatie 27
00500 Helsinki
Tel. +358 9 774422-0
Fax +358 9 774422-44
Email: info@extekniikka.fi
Internet: www.extekniikka.fi

◆**Frankreich / *France***
R. STAHL France S.A.S.
104-106 rue de Montigny
95100 Argenteuil
Tel. +33 1 39985050
Fax +33 1 34110808
Email: info@stahl.fr
Internet: www.stahl.fr

Griechenland / *Greece*
ADICON
6 Selefkou
13676 THRAKOMAKEDONES /
ATHENS
Tel. + 30 210 243 3383
Fax + 30 210 243 5073
Email: tsakarelos@tee.gr

◆**Großbritannien / *Great Britain***
R. STAHL LTD.
Stahl House,43 Elmdon Trading Estate
Bickenhill Lane
Birmingham B37 7HE
Tel. +44 121 767 6400
Fax +44 121 767 6490
Email: info@rstahl.co.uk
Internet: www.rstahl.co.uk

◆**Italien / *Italy***
R. STAHL S.R.L.
Leivi
16040 S. Colombano (Ge)
Tel. +39 0185 358391 - 92
Fax +39 0185 358219
Email: info@stahl.it
Internet: www.stahl.it

Kasachstan / *Kazakhstan*
BORKIT LTD
86, Gogol St.
Office No. 323
Almaty, 480091
Tel. +7 3272 506128
Fax +7 3272 506129

BORKIT LTD
74A, Azattyk Ave.,
Atyrau, 060005
Tel. +7 3122 457190
Fax +7 3122 457346

Kroatien / Croatia
TEHMAR d.o.o.
Palmoticeva 23
21000 Split
Tel. +385 21 530564
Fax +385 21 530564
Email: info@tehmar-st.hr
zoran.babic@st.htnet.hr

Lettland / *Latvia*
BALTIJAS ELEKTRO SABIEDRIBA SIA
Krustpils Iela 38a
1057 Riga
Tel. +371 7100100
Fax +371 7188862

Litauen / *Lithuania*
UAB ELEKTROBALT
Liepkalnio g. 85
02120 Vilnius
Tel. +370 5 2660091
FAX +370 5 2660097

Mazedonien / *Makedonia*
KEYING
Prolet 39
1000 Skopje
Tel. +389 23 230203
Fax +389 23 110046

■ **Niederlande / *Netherlands***
ELECTROMACH B.V.
Hamerstraat 10
P.O. Box 175
7550 AD Hengelo
Tel. +31 74 2472472
Fax +31 74 2435925
Email: info@electromach.nl
Internet: www.electromach.com

◆**Norwegen / *Norway***
STAHL-SYBERG A.S
Prof. Birkelandsvei 27b
1081 Oslo
Tel. +47 24084410
Fax +47 24084411
Email: g.steffenssen@stahl-syberg.no
Internet: www.stahl-syberg.no

◆**Österreich / *Austria***
R. STAHL Schaltgeräte GmbH
WILHELM GALL
Vertriebsbeauftragter
Birkengasse 17
2435 Ebergassing
Tel +43 2234 / 734 01
Fax +43 2234 / 734 15
Mobil +43 664 / 438 96 15
Email: wilhelm.gall@stahl.de
Internet: www.stahl.de

◆ **Polen / Poland**
ASE-Automatic Systems Engineering
ul. Narwicka 6
80557 Gdansk
Tel. +48 58 5207720
Fax +48 58 3464344

◆ **Portugal**
Industrias STAHL, S.A.
sucursal em Portugal
Largo Piramide nº 3 M Sala E Gab. 7
2795-156 Linda-a-Velha
(Conçeio Oeiras)
Lisboa
Tel.+351 21 4145315
Fax.+351 21 4145317
Email: stahl@stahl.pt

Rumänien / Romania
COELCO TRADE
Blv. Iuliu Maniu nr. 19C
Bucuresti 6, RO 061076
Tel. +40 21 4119621
Fax +40 21 4119781
Email: office@coelco.ro

Russland / Russia
INTERPROMPRIBOR
6th floor No. 10 , Zvyozdnyi bulvar 21
129085 Moskau
Tel. +7 495 6163252
Fax +7 495 6163464
Email: impromprr@rol.ru
Internet: www.interprompribor.ru

ITC Novosibirsk
Krasniy Prospekt 82/1
630091 Novosibirsk
Tel. +7 383 2277888
Fax +7 383 3356930
Email: nsk@itc-electronics.com

Serbien / *Serbia*
KEYING d.o.o,
Vuka Karadžia 79
23300 Kikinda
Tel. +381 230 401770
Fax +381 230 401790
Email: keying@flashnet.co.yu

◆ **Schweden / *Sweden***
R. STAHL SVENSKA AB
Bagspännarvägan 14
17568 Järfälla
Tel. +46 8 389100
Fax +46 8 389198

◆ **Schweiz / *Switzerland***
STAHL-FRIBOS AG
Industriestraße 26
5070 Frick
Tel. +41 62 86540-60
Fax +41 62 86540-80
Email: info@stahl-fribos.ch
Internet: www.stahl-fribos.ch

Slowakei / *Slovakia*
HAGARD:HAL
Prazska 6
949 11 Nitra
Tel. +421 37 7913000
Fax +421 37 7411508

Slowenien / *Slovenia*
SYNATEC d.o.o.
Vojkova ulica 8B
5280 Idrija
Tel. +386 5 3720650
Fax +386 5 3720660

◆ **Spanien / *Spain***
INDUSTRIAS STAHL S.A.
Aragoneses, 2 Acceso 10
Polígono Industrial
28108 Alcobendas (Madrid)
Tel. +34 91 6615500
Fax +34 91 6612783
Email: stahl@stahl.es
Web page: www.stahl.es

◆**Republik Südafrika /**
Republic of South Africa
ESACO PTY. LTD.
P.O. Box 3095
1610 Edenvale
Tel. +27 11 6083100
Fax +27 11 6083165
Email: esaco@esaco.co.za
rpanis@esaco.co.za

◆**Tschechische Republik /**
Czech Republic
EX-TECHNIK spol. s.r.o.
Na Peconce 1903/21
710 00 Ostrava
Tel. +420 69 6242548
Fax +420 69 6242551
Email: martin.balek@ex-technik.cz
Internet: www.ex-technik.cz

Ukraine
DONETSK ENGINEERING GROUP
17, 50th Gvardeyskaya Diviziya str.
Donetsk 83052
Tel. +380 62 3828977
Fax +380 62 3828412
Email: marketing@deg.com.ua

◆**Ungarn / *Hungary***
STAHL Magyarország Kft
17. Maglódi str., C/I/107.
1106 Budapest
Tel. +36 1 4333360
Fax +36 1 4333361
Email: rstahl@rstahl.hu
Internet: www.rstahl.hu

Weißrussland/*Belarus*
Eximelektro
ul. Serafimowitscha 13-23
Minsk 220033
Tel. +375 17 2984457
Fax +375 17 2984156

AMERIKA / AMERICA

Argentinien / *Argentina*
NORRI S.R.L.
Bogota 2384
1640 Martinez
Pcia. Buenos Aires
Tel. +54 11 4717-6991, 6334
Fax +54 11 4798-6991, 6334

Brasilien / *Brazil*
INSTRUMENTOS LINCE LTDA.
Rua Luiz Ferreira, 84
Bonsucesso
21042 - 210 Rio de Janeiro-RJ
Tel. +55 21 25732344
Fax +55 21 25615326

◆Chile
INGENIERIA DESIMAT LTDA.
Av. Puerto Vespucio
9670 Pudahuel Santiago
Tel. +56 2 7470152
Fax +56 2 7470153

Kolumbien / *Colombia*
AUTOMATIZACION AVANZADA S.A.
Carrera 98 No. 41A-23
Bodega 3
Santafe de Bogota
Tel. +57 1 4188867, 4132324
Fax +57 1 4159788

Peru
DESIMAT PERU SAC
Av. Velasco Astete 2371
Surco - Lima
Tel : +51 1 2752765
+51 1 2752776
Email: ventasperu@desimat.com

■ USA/Kanada / *USA/Canada*
R. STAHL INC.
9001 Knight Rd.
Astro Business Center
Houston, Tx 77054
Tel. +1 713 7929300
Fax +1 713 7929301
Email: sales@rstahl.com
Internet: www.rstahl.com

Venezuela
TEXCA C.A.
Edificio LIPESA, Piso 3, Oficina 32
Avenida Orinoco, Bello Monte
Caracas
Tel. +58 212 9532769
Fax +58 212 9521504

ASIEN / ASIA

Abu Dhabi
Al Sahwa Trading Co. L.L.C.,
P.O. Box: 45491
Abu Dhabi
Tel: +971 2 6273270
Fax +971 2 6270960
Email:rajantawade@alhassan.ae

Australien / *Australia*
NHP Electrical Engineering Products Pty Ltd.
43-67 River Street
Richmond Victoria 3121
Tel: +61 3 9429 2999
Fax +61 3 9429 1075
Email: mel-sales@nhp.com.au
Internet: www.nhp.com.au

Brunei
Aisha Automation Company
No.137, Lot 4034, Jalan Jaya Negara,
Kuala Belait KA1931,
P.O. Box 629, Kuala belait KA1131,
Negara Brunei Darussalam.
Tel: +673 3331312, 3342529.
Fax: +673 3342529
Email: Enquiry@aishaautomation.com

■ V.R. China / *P.R. China*
R. STAHL EX-PROOF CO. LTD.
(SHANGHAI)
Unit D, 9th Floor, Building No. 4
889 Yishan Road
Shanghai 200233
Tel. +86 21 64850011
Fax +86 21 64852954
Email: benjamin@rstahl.com.cn

■ Indien / *India*
R. STAHL (P) LTD.
9, Arcot Road
Lakshmi Nagar, Porur
Chennai 600 116
Tel. +91 44 24766674
Fax +91 44 24767835
Email: stahl@vsnl.com

Indonesien / *Indonesia*
P.T. MUSTIKA STAHL
Jl. Griya Agung No. 81
Griya Inti Sentosa – Sunter Agung
Jakarta 14350
Tel. +62 21 6450574
Fax +62 21 6404249
Email: m.stahl@dnet.net.id

PT ULTRA DELTA MAJU
Kedoya Elok Plaza
Blok DD No. 59-60
Jl. Panjang Kebon Jeruk
Jakarta 11520
Tel. +62 21 58300678
Fax +62 21 58300686/87

Iran
TBN Co.
Apt. 13, 7th Flr. No. 92,
West Sepand St, South Aban Ave
Karim Khan Zand Blvd
Tehran
Tel. +982 188 927 264
Email: nader@tbnco.com

■ Japan
R. STAHL K.K. CO. LTD..
Sinyurigaoka - City Bldg. 4F
1-1, Manpukuji 1-chome, Asou
215-0004 Kawasaki-shi, Kanagawa
Tel. +81 44 9592612
Fax +81 44 9592605
Email: sakae-nishimine@par.odn.ne.jp

Korea
R. STAHL CO. LTD.
No. 503 Keang Nam Bldg.
#163-16 Sung Nae-Dong
Kang Dong-Ku
Seoul
Tel. +82 2 4708877
Fax +82 2 4718285
Email: korea@stahl.co.kr

Kuwait
Rezayat Trading Company
P.O. Box 106
Safat 13002
Kuwait
Tel: +965 481 6838
Email: kmoryani@rezayatkwt.com

◆Malaysia
ESTEEM LINK (LU) SDN BHD.
(Agent for East Malaysia: Switchgear & Lighting)
321, Jalan Nahkoda Gampar,
PO Box 1140,
98008 Miri, Sarawak
Tel. +60 85 417230
Fax +60 85 414352
Email: ellusb@tm.net.my

EMPIRE ENGINEERING SDN BHD.
(Agent for West Malaysia: Switchgear & Lighting)
Unit D3A02, Kelana Square
17, Jalan SS7/26, Kelana Jaya
47301 Petaling Jaya, Selangor
Tel. +60 37803 1477
Fax +60 37803 1377
Email: info@empire-engr.com
Website: www.empire-engr.com

VECTOR INFOTECH SDN BHD
(Instrumentation only)
Block C-5-7 & 8 (Level 7)
UE3 Menara Uncang Emas
No. 85, Jalan Loke Yew
55300 Kuala Lumpur
Tel. +60 3 92001396/1397
Fax: +60 3 92001398
Email: dshii@vectorinfotech.com
Website: www.vectorinfotech.com

◆Neuseeland / *New Zealand*
ELECTROPAR
P.O. Box 58623
Greenmount
Auckland 1701
Tel. +64 9 2742000
Fax +64 9 2742001
Email: mikeb@electropar.co.nz
Website: www.electropar.co.nz

Oman
Al Hassan Group of Companies
P.O. Box 1948
Postal Code 112
Ruwi
Tel: +968 248 10575-209
Email: vinita@al-hassan.com

Pakistan
CLIPSAL PAKISTAN (PVT) LTD
101-102, Sector 15
Korangi Industrial Estate
Karachi
Tel. +92 21 5067278
Fax +92 21 5063369

Philippinen/*Philippines*
MATERIALS UNLIMITED CORPORATION
No. 2 Congressional Avenue
Project 6, Quezon City
Tel. +63 2 4263856/57
Fax +63 2 9248664
Email: matcor@pldtdsl.net

Qatar
Petroleum Technology Co. W.L.L.
P.O. Box 16069
8th Floor, Toyota Tower
Airport Road
Doha
Tel: +974 441 9603
Email: mohan@petrotecnet.com

Saudi Arabien / *Saudi Arabia*
Al-Quraishi Electrical Services of S.A.
Jubail Branch
Kingdom of Saudi Arabia
Tel. +966 3 835 1155 Ext. 300
Email: bashara@aqesa.com

Singapur / *Singapore*
R. STAHL PTE LTD.
No. 3791 JALAN BUKIT MERAH
#09-08/09 E-CENTRE@ REDHILL
SINGAPORE 159 471
Tel. +65 62714065
Fax +65 63770111
Email: rstahl@singnet.com.sg
Website: www.rstahl.com.sg

BENWIN SINGAPORE PTE LTD
(Switchgear & Lighting)
237 Kaki Bukit Ave 1
Shun Li Industrial Park
Singapore 416053
Tel: +65 6842 6880
Fax: +65 6842 6836
Email: benny@benwin.com.sg
Website: www.benwin.com.sg

VECTOR INFOTECH PRIVATE LIMITED
(Instrumentation only)
91 Defu Lane 10, #04-01
Swee Hin Building Singapore 539221
Tel: +65 6356 7333
Fax: +65 6356 7322
Email: ahtan@vectorinfotech.com
Website: www.vectorinfotech.com

◆Taiwan
WAN JIUN HSING ENTERPRISE CO. LTD.
11F-1, No. 178, Sec. 4, Cheng Te Rd.
Taipei
Tel. +886 2 28822211
Fax +886 2 28817562

Thailand
C.K. ELECTECH CO. LTD.
31/14 Dhamrongruk Rd.
Pomprab
Bangkok 10100
Tel. +66 2 2800150-4
Fax +66 2 2803663-4

CONTROLOGIC CO. LTD.
343, 345 Soipattanakarn 3
Pattanakarn Road.,
Suan Luang
Bangkok 10250
Tel. +66 2 3187499
Fax +66 2 3182818

Türkei / *Turkey*
KAS PAZARLAMA A.S.
Sedat Simavi Sk. No: 52/2
06550 Cankaya / Ankara
Tel. +90 312 4414335
Fax +90 312 4414336
Email: info@kaspazarlama.comtr.
Internet: www.kaspazarlama.com.tr

◆VAE / *UAE*
R. STAHL MIDDLE EAST FZE
P.O. Box 17784
Jebel Ali Free Zone
Dubai
Tel. +971 4 8835855
Fax +971 4 8834685

Vietnam
HAI SON COMPANY LTD
A20-K34 Tran Thien Chanh Street
District 10, Hochiminh City
Tel. +84 8 8630919
Fax +84 8 8630920
Email: hai@haison.com.vn
Website: www.haison.com.vn

■ Produktionsstätte mit Werkstatt
Production site with workshop
◆ Lager mit Werkstatt
Stock with workshop

Stand:
01.01.2007