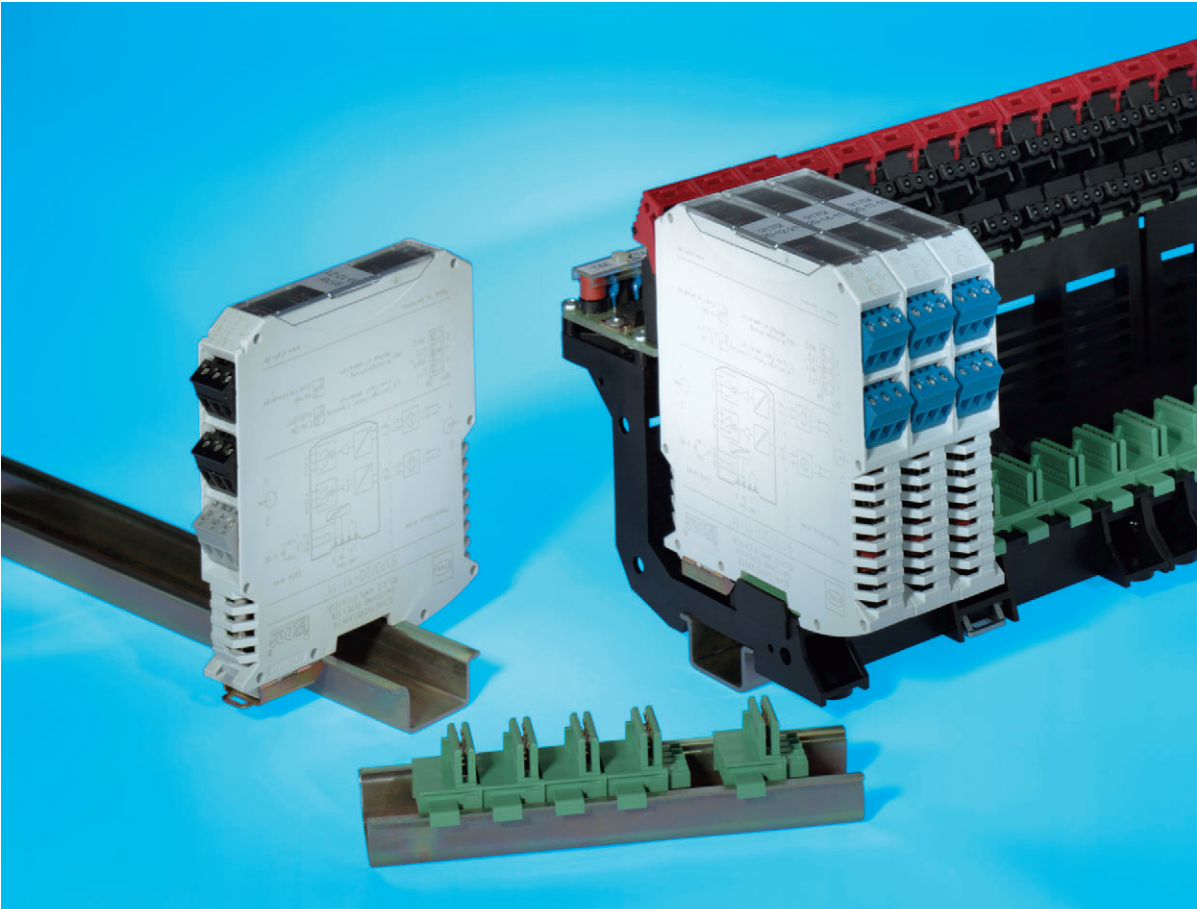




Engineering Guideline
pac-Carriers Type 9195
for Yokogawa Centum VP

issued December 2009

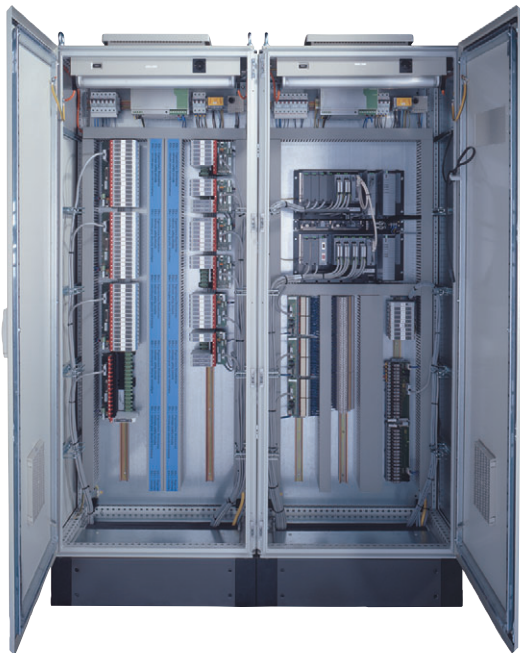
Integrated solutions for Yokogawa

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.




Example of a customer specific field station for a Yokogawa system

11161E00

Your benefits:

- Application oriented and cost optimized solutions for your customer project
- In depth consulting regarding automation solutions for hazardous 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

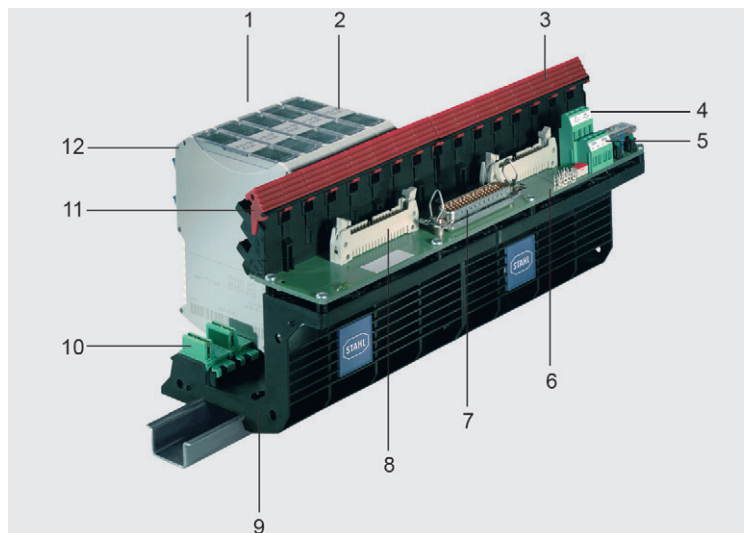
The ISpac carrier reflects the intention of R. STAHL to provide state-of-the-art concepts tailored to the needs of Yokogawa for the field of process automation. It is designed to reduce the cost of installation by space saving compact design and simplified installation. The modules can be mounted without 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

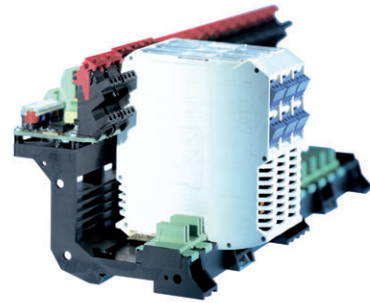
- 1 Detachable connectors
 - Screw terminals or
 - Cage clamp terminals or
 - Insulating cutting terminals
- 2 Labelling for module, slot and carrier
- 3 Ejector mechanism
- 4 Redundant and fused supply
- 5 Power supply failure and line fault signalling via relay
- 6 System card specific PCB
- 7 System 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

Signal type	Control system					pac-Carrier		
	I/O cards type	Channel	Slots	HART-MUX	Redundancy	pac-Carrier type	ISpac type	Page
DI	AAP 135 (< 800Hz)	8	8	no	no	9195/08A-YO1-10V1	9170/10-14-11	65-68
	AAP 135 (> 800Hz)	8	8	no	no	9195/08A-YO1-11V1	9170/10-14-11	69-72
	ADV 151 / 157	32	16	no	yes	9195/16A-YO1-06A2	9170/20-14-11 9170/20-11-11	85-90
	ADV 161	2 x 32	2 x 16	no	yes	2 x 9195/16A-YO1-06A2	9170/20-14-11 9170/20-11-11	85-90
DO	ADV 551	32	16	no	yes	9195/16A-YO1-07A2	9175/20-1-11 9176/20-1-00 9172/21-11-00	91-96
	ADV 561	2 x 32	2 x 16	no	yes	2 x 9195/16A-YO1-07A2	9175/20-1-11 9176/20-1-00 9172/21-11-00	91-96
AI	AAI 135	8	8	9192/32	yes	9195/08H-YO1-09V1	9160/13-11-11 9163/13-11-11 9182/10-51-11 9146/10-11-12	13-18
	AAI 141 / 143	16	16	no	no	9195/16A-YO1-01D	9160/13-11-11 9163/13-11-11 9182/10-51-11 9146/10-11-12	19-24
	AAI 141 / 143	16	16	no	no	9195/16A-YO1-01E	9160/19-11-11 (each AI 2nd output)	25-28
	AAI 141 / 143	16	8	9192/32	yes	9195/08H-YO1-01V1	9160/23-11-11 9163/23-11-11 9182/20-51-11 9146/20-11-11	29-34
	AAI 141 / 143	16	16	9192/32	yes	9195/16H-YO1-01V1	9160/13-11-11 9163/13-11-11 9182/10-51-11 9146/10-11-12	35-40
	AAV 141 / 144	16	8	9192/32	yes	9195/08H-YO1-02V1	9160/23-11-11 9163/23-11-11 9182/20-51-11 9146/20-11-11	73-78
	AAV 141 / 144	16	16	no	no	9195/16A-YO1-02D	9160/13-11-11 9163/13-11-11 9182/10-51-11 9146/10-11-12	79-84
AO	AAI 543	16	8	9192/32	yes	9195/08H-YO1-03V1	9165/26-11-13 9167/2-11-00	41-46
AI & AO	AAB 841	8x AI + 8xAO	8	9192/32	yes	9195/08H-YO1-05V1	AI 9160/23-11-11 9163/23-11-11 9182/20-51-11 9146/20-11-11 AO 9165/26-11-13 9167/2-11-00	7-12
	AAI 835	4x AI + 4xAO	8	9192/32	yes	9195/08H-YO1-09V1	AI 9160/13-11-11 9163/13-11-11 9182/10-51-11 AO 9165/16-11-13 9146/10-11-12 9167/1-11-00	47-52
	AAI 841	8x AI + 8xAO	8	9192/32	yes	9195/08H-YO1-04V1	AI 9160/23-11-11 9163/23-11-11 9182/20-51-11 9146/20-11-11 AO 9165/26-11-11 9167/24-11-00	53-58
	AAI 841	8x AI + 8xAO	16	no	no	9195/16A-YO1-04D	AI 9160/13-11-11 9163/13-11-11 9182/10-51-11 9146/10-11-12 AO 9165/16-11-13 9167/14-11-00	59-64

pac-Carrier Type 9195/08H-YO1-05V1

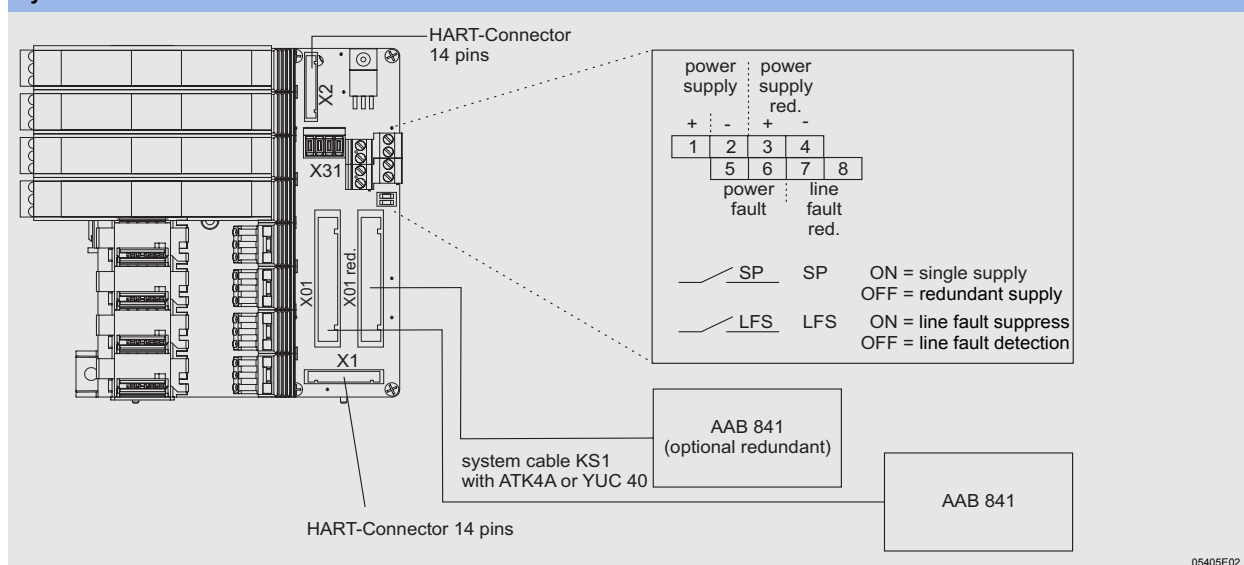
- For Yokogawa / Centum VP / AAB 841
- Signal types: 8 x AI + 8 x AO
- pac-Carrier for 8 modules, i.e. up to 16 signals
- ISpac isolators AI 9160/23-11-11, 9163/23-11-11, 9182/20-51-11, 9146/20-11-11, AO 9165/26-11-13 and 9167/2.-11-00 can be used
- Connection to HART-management systems
- Customized 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



05179E00

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

System Overview



05405E02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAB 841	8	9192/32	yes	9195/08H-YO1-05V1

Technical Data

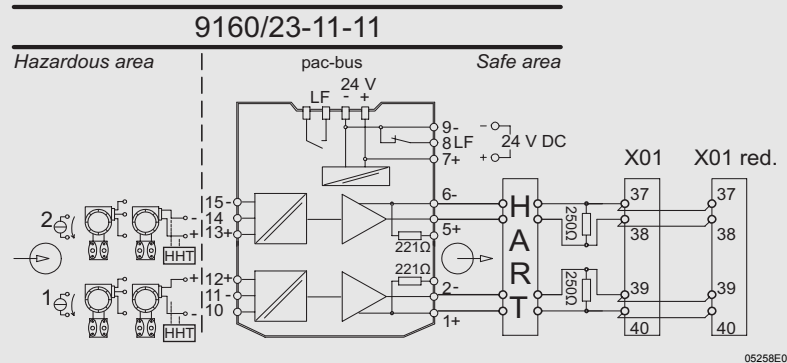
Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	19 V ... 31.2 V
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; 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 (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.

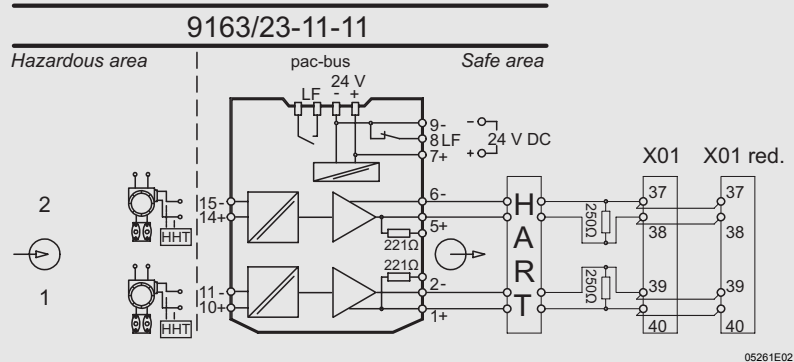
Transmitter supply unit (AI)

for 2-, 3-wire transmitter and mA-sources
for 2-wire transmitter with HART



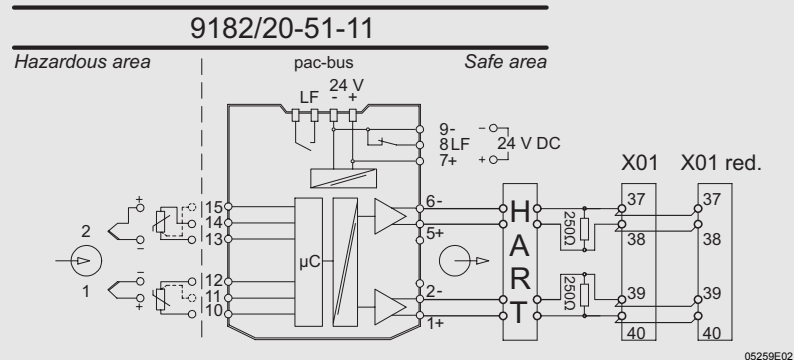
Isolating repeater (AI)

for 4-wire transmitter and mA-sources
bi-directional HART communication



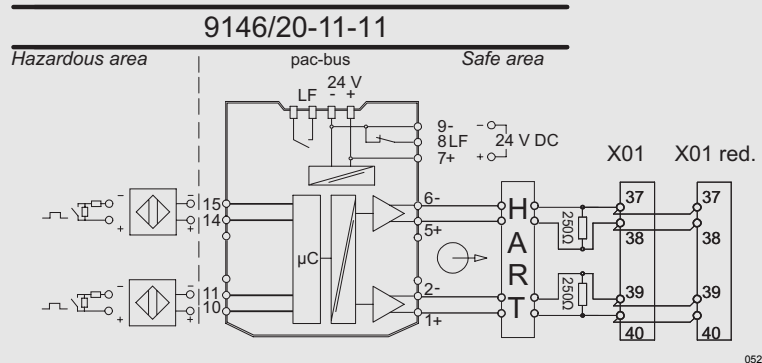
Temperature transmitter (AI)

for resistance thermometer, thermocouple and RTD
(Configuration by means of DIP switches or ISpac Wizard software)



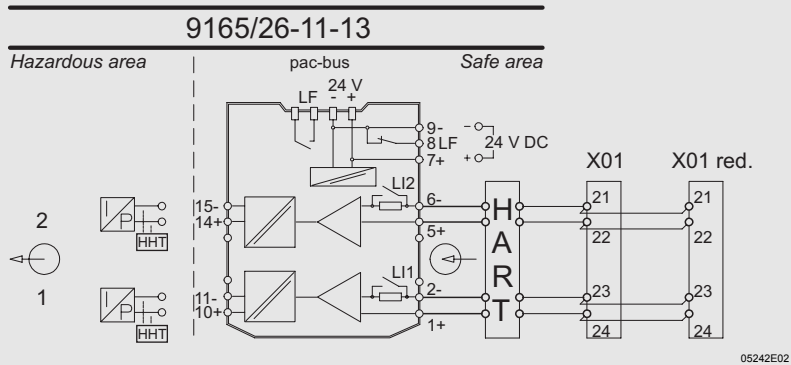
Frequency transmitter

The frequency transmitter allows to monitor the speed of rotating devices in the hazardous area

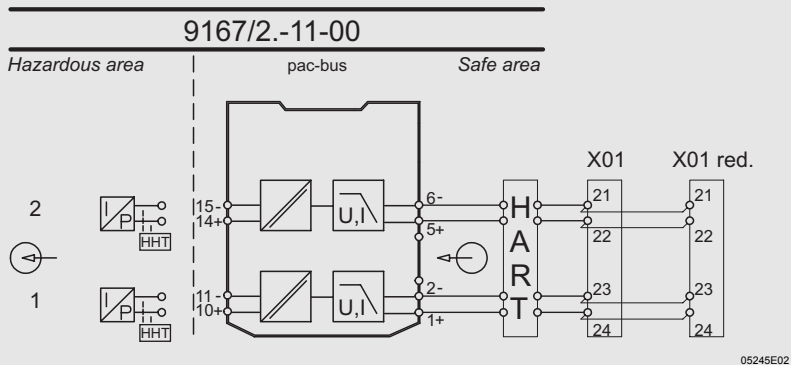


Signal Loops

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



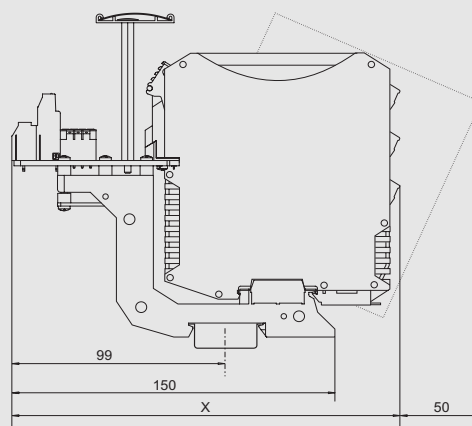
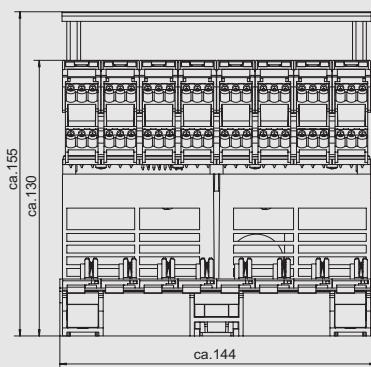
Isolating repeater (AO)
Loop-powered, for control valves,
i/p-converters or indicators
bi-directional HART communication



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 / input no.	pin X01 (ATK4A + KS1)		pin X01 red. (ATK4A + KS1)	
10 1)	+	1	1	input 1	+	40	+	40
11 1)	-				-	39	-	39
14 1)	+	2		input 2	+	38	+	38
15 1)	-				-	37	-	37
10 1)	+	3	2	input 3	+	36	+	36
11 1)	-				-	35	-	35
14 1)	+	4		input 4	+	34	+	34
15 1)	-				-	33	-	33
10 1)	+	5	3	input 5	+	32	+	32
11 1)	-				-	31	-	31
14 1)	+	6		input 6	+	30	+	30
15 1)	-				-	29	-	29
10 1)	+	7	4	input 7	+	28	+	28
11 1)	-				-	27	-	27
14 1)	+	8		input 8	+	26	+	26
15 1)	-				-	25	-	25
10	+	9	5	output 1	+	24	+	24
11	-				-	23	-	23
14	+	10		output 2	+	22	+	22
15	-				-	21	-	21
10	+	11	6	output 3	+	20	+	20
11	-				-	19	-	19
14	+	12		output 4	+	18	+	18
15	-				-	17	-	17
10	+	13	7	output 5	+	16	+	16
11	-				-	15	-	15
14	+	14		output 6	+	14	+	14
15	-				-	13	-	13
10	+	15	8	output 7	+	12	+	12
11	-				-	11	-	11
14	+	16		output 8	+	10	+	10
15	-				-	9	-	9

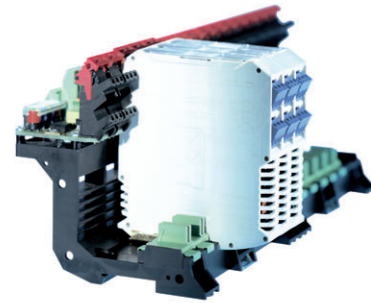
05181E02

1) Different possibilities of field device connections

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/08H-YO1-09V1

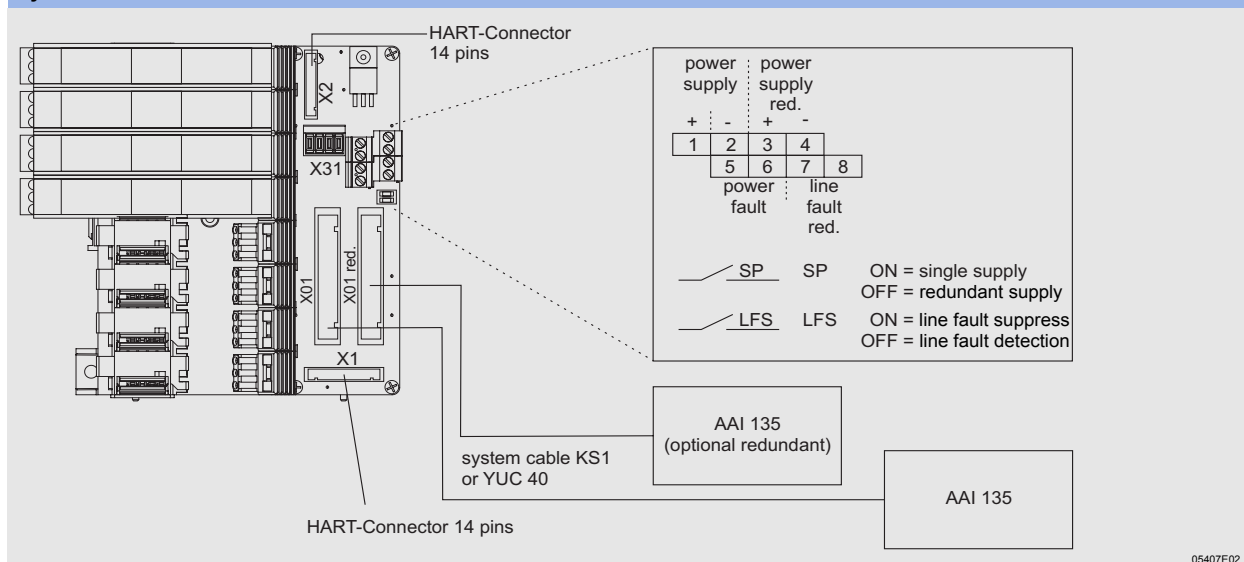
- For Yokogawa / Centum VP / AAI 135
- Signal types: 8 x AI
- pac-Carrier for 8 modules, i.e. up to 8 signals
- ISpac isolators AI 9160/13-11-11, 9163/13-11-11, 9182/10-51-11 and 9146/10-11-12 can be used
- Connection to HART-management systems
- Customized system cables type KS1 or YUC 40 to automation 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



05179E00

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

System Overview



05407E02

STAHL

SelectionTable

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAI 135	8	9192/32	yes	9195/08H-YO1-09V1

Technical Data

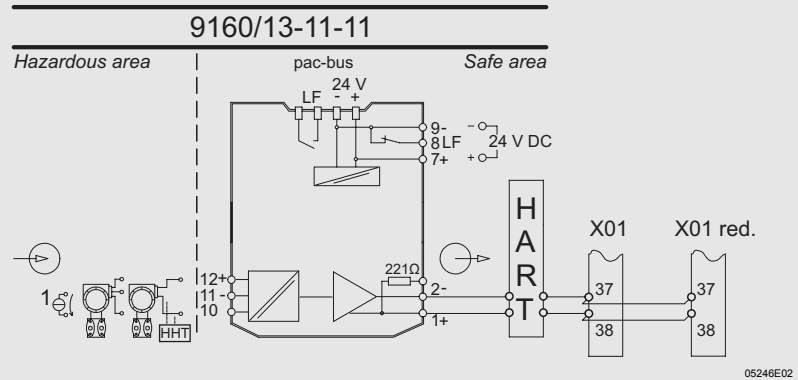
Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	19 V ... 31.2 V
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; 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 (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.

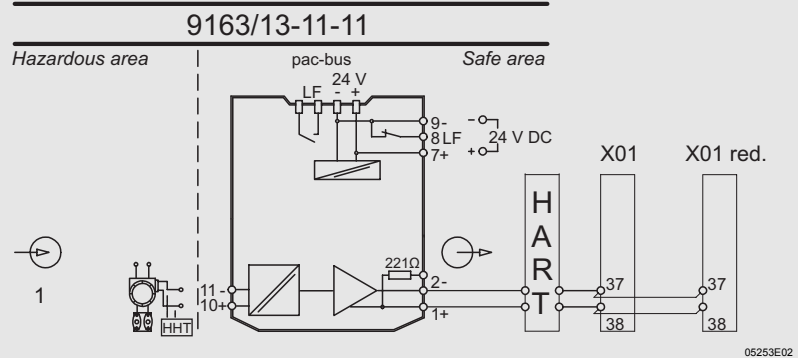
Transmitter supply unit (AI)

for 2-, 3-wire transmitter and mA-sources
for 2-wire transmitter with HART



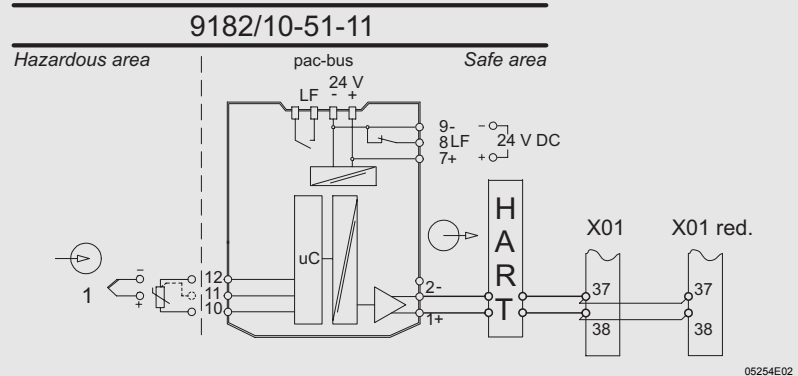
Isolating repeater (AI)

for 4-wire transmitter and mA-sources
bi-directional HART communication



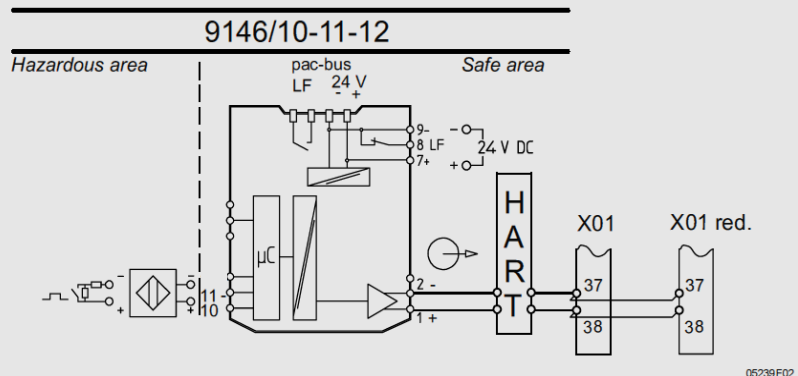
Temperature transmitter (AI)

for resistance thermometer, thermocouple and RTD
(Configuration by means of DIP switches or ISpac Wizard software)



Frequency transmitter

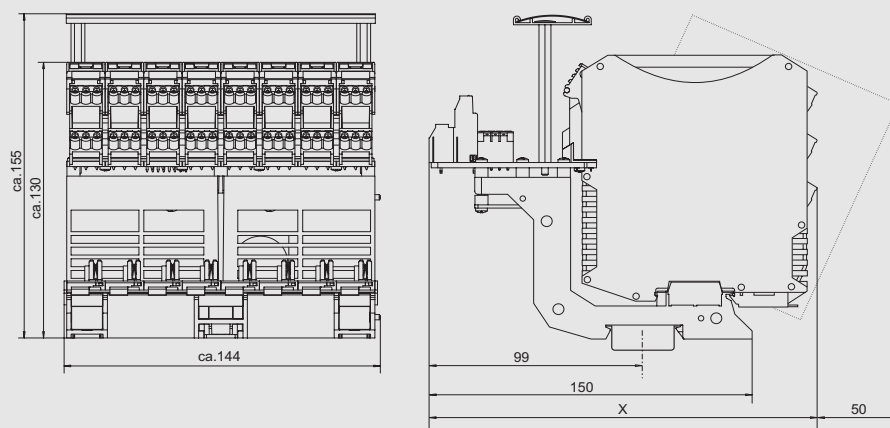
The frequency transmitter allows to monitor the speed of rotating devices in the hazardous area



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 (ATK4A + KS1)		pin X01 red. (ATK4A + 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

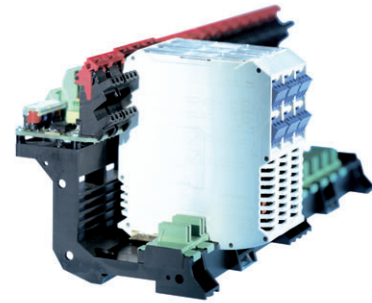
05322E02

1) Different possibilities of field device connections

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/16A-YO1-01D

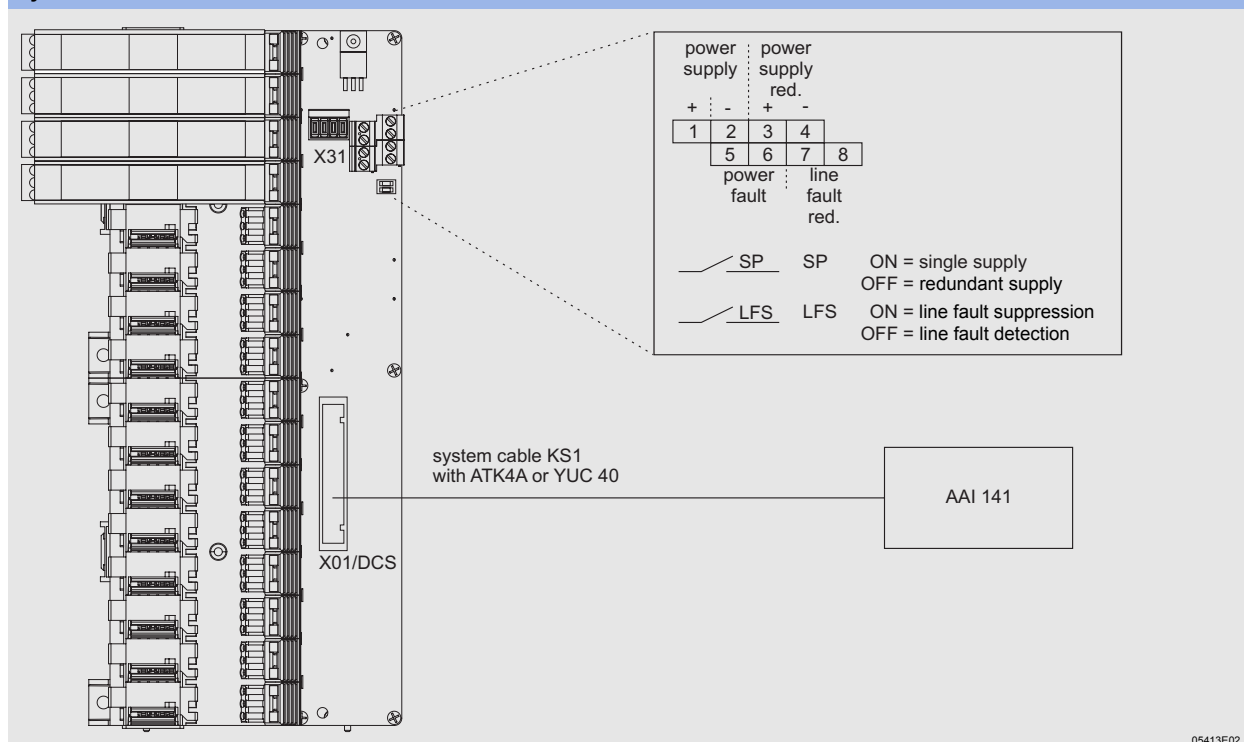
- For Yokogawa / Centum VP / AAI 141 / 143
- Signal types: 16 x AI
- pac-Carrier for 16 modules, i.e. up to 16 signals
- ISpac isolators AI 9160/13-11-11, 9163/13-11-11, 9182/10-51-11 and 9146/10-11-12 can be used
- Customized system cables type KS1 and adapter ATK4A or YUC 40 to automation system
- 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



05179E00

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

System Overview



05413E02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAI 141/143	16	no	no	9195/16A-YO1-01D

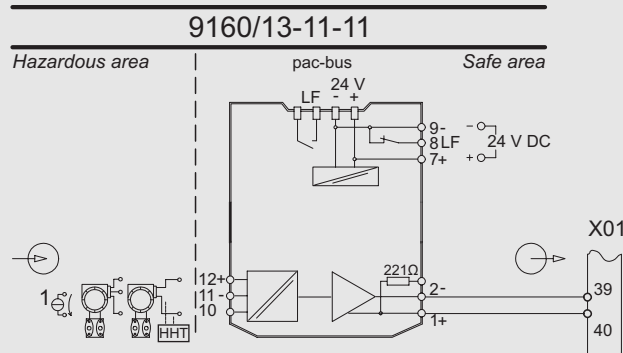
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex 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	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 (specification see "signal loops")
Number of channels	16
Connection automation system (X01/DCS)	
Connection	1 x plug 40 pole for KS1 or YUC 40 cable
Number of channels	16
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

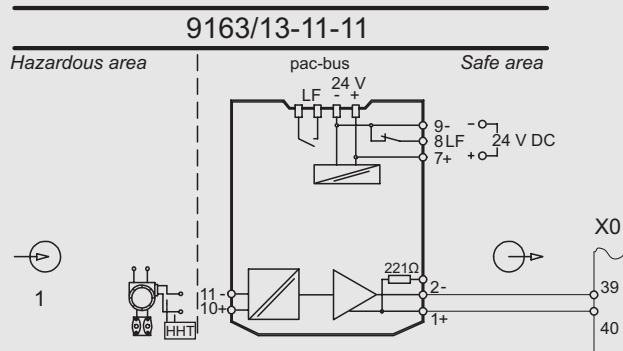
The diagrams below show typical applications. Please refer to the connection list to get the entire connection scheme. Basic technical parameters of the ISpac isolating repeaters can be found at the end of this document. The detailed specifications can be downloaded at: www.ispac.info.

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



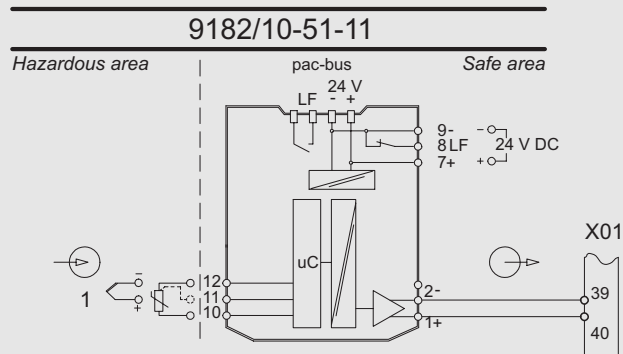
05246E02

Isolating repeater (AI)
for 4-wire transmitter and mA-sources
bi-directional HART communication



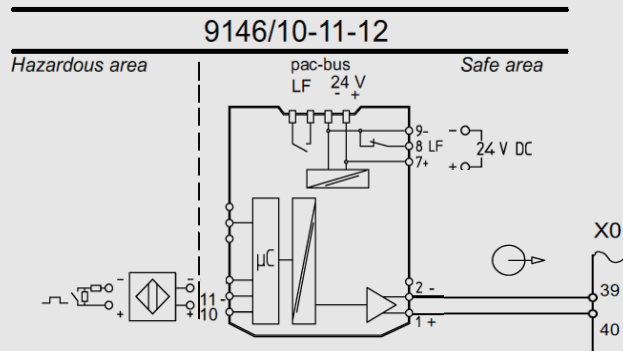
05283E02

Temperature transmitter (AI)
for resistance thermometer,
thermocouple and RTD
(Configuration by means of DIP
switches or ISpac Wizard software)



05289E02

Frequency transmitter
the frequency transmitter allows
to monitor the speed of rotating
devices in the hazardous area

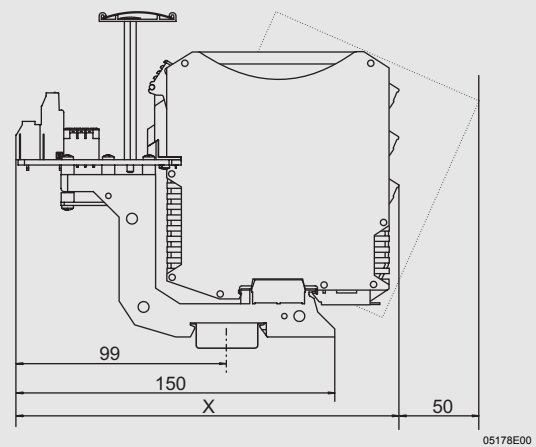
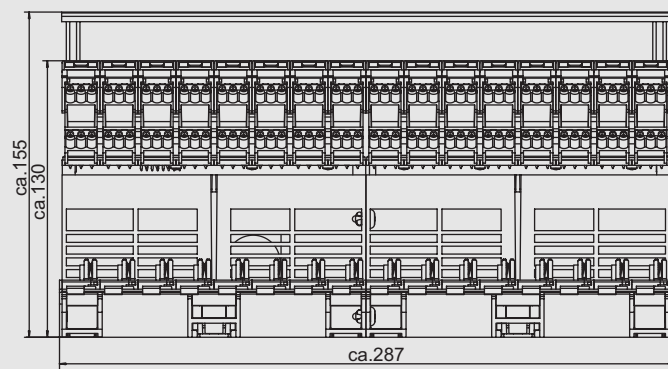


05239E02

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	input no.	pin X01 system cable KS1	
1*	+	1	1	1	+	39
	-				-	40
1*	+	2	2	2	+	37
	-				-	38
1*	+	3	3	3	+	35
	-				-	36
1*	+	4	4	4	+	33
	-				-	34
1*	+	5	5	5	+	31
	-				-	32
1*	+	6	6	6	+	39
	-				-	30
1*	+	7	7	7	+	27
	-				-	28
1*	+	8	8	8	+	25
	-				-	26
1*	+	9	9	9	+	23
	-				-	24
1*	+	10	10	10	+	21
	-				-	22
1*	+	11	11	11	+	19
	-				-	20
1*	+	12	12	12	+	17
	-				-	18
1*	+	13	13	13	+	15
	-				-	16
1*	+	14	14	14	+	13
	-				-	14
1*	+	15	15	15	+	11
	-				-	12
1*	+	16	16	16	+	9
	-				-	10

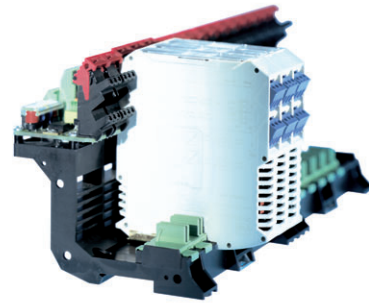
05334E02

1) Different possibilities of field device connections; for further informations see: instruction manual of 9160/13-11-11 and 9182/10-51-11

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/16A-YO1-01E

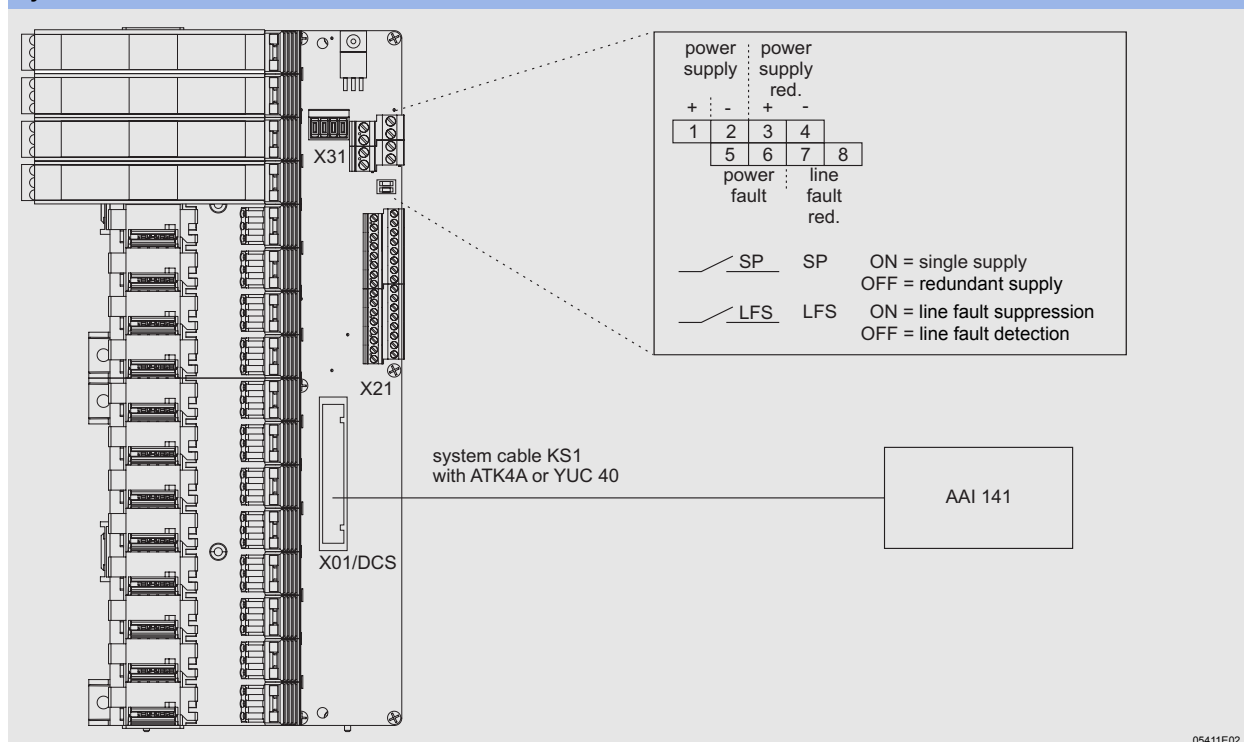
- For Yokogawa / Centum VP / AAI 141 / 143
- Signal types: 16 x AI + each AI 2. output
- pac-Carrier for 16 modules, i.e. up to 16 signals
- ISpac isolators AI 9160/19-11-11 can be used
- Customized system cables type KS1 and adapter ATK4A or YUC 40 to automation system
- Redundant power supply with 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



05179E00

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

System Overview



05411E02



Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAI 141/143	16	no	no	9195/16A-YO1-01E

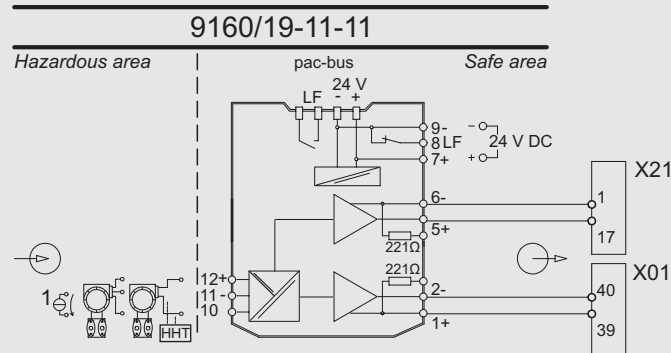
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex 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	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 (specification see "signal loops")
Number of channels	16
Connection automation system (X01/DCS)	
Connection	1 x plug 40 pole for KS1 or YUC 40 cable
Number of channels	up to 16
Connection automation system (X21)	
Connection	Screw terminal
Number of channels	up to 16
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



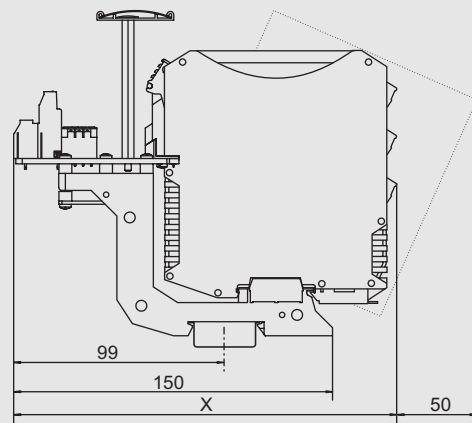
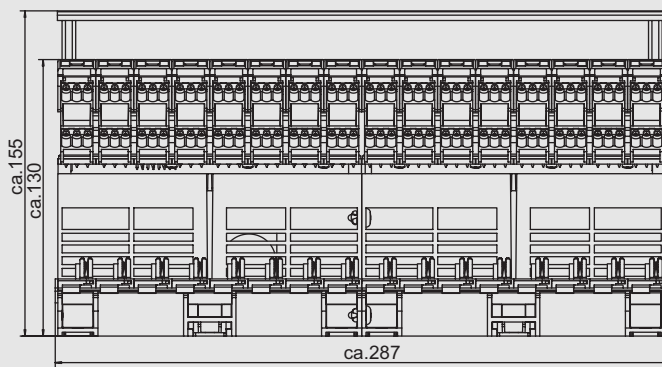
05280E02

Accessories and Spare Parts

Designation	Illustration	Description	Order number	Weight kg
Non-Ex i Termination Module		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

06314E00

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



05178E00



	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 system cable KS1		X 21 terminals second output	
1*	+	1	1	input 1	+	39	+	17
	-				-	40	-	1
1*	+	2	2	input 2	+	37	+	18
	-				-	38	-	2
1*	+	3	3	input 3	+	35	+	19
	-				-	36	-	3
1*	+	4	4	input 4	+	33	+	20
	-				-	34	-	4
1*	+	5	5	input 5	+	31	+	21
	-				-	32	-	5
1*	+	6	6	input 6	+	39	+	22
	-				-	30	-	6
1*	+	7	7	input 7	+	27	+	23
	-				-	28	-	7
1*	+	8	8	input 8	+	25	+	24
	-				-	26	-	8
1*	+	9	9	input 9	+	23	+	25
	-				-	24	-	9
1*	+	10	10	input 10	+	21	+	26
	-				-	22	-	10
1*	+	11	11	input 11	+	19	+	27
	-				-	20	-	11
1*	+	12	12	input 12	+	17	+	28
	-				-	18	-	12
1*	+	13	13	input 13	+	15	+	29
	-				-	16	-	13
1*	+	14	14	input 14	+	13	+	30
	-				-	14	-	14
1*	+	15	15	input 15	+	11	+	31
	-				-	12	-	15
1*	+	16	16	input 16	+	9	+	32
	-				-	10	-	16

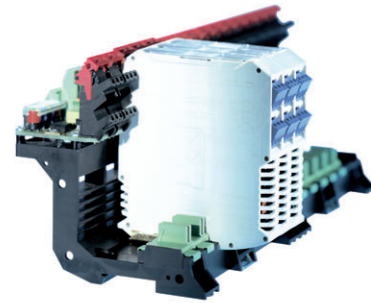
05333E02

1*: Different possibilities of field device connections

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/08H-YO1-01V1

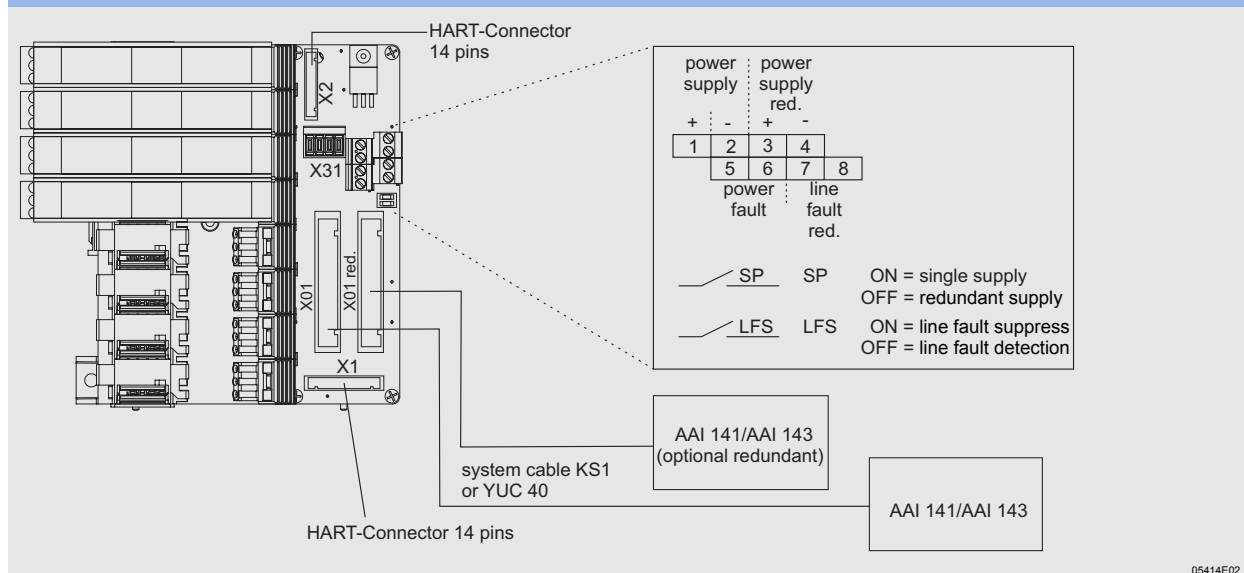
- For Yokogawa / Centum VP / AAI 141 / AAI 143
- Signal types: 16 x AI
- pac-Carrier for 8 modules, i.e. up to 16 signals
- ISpac isolators AI 9160/23-11-11, 9163/23-11-11, 9182/20-51-11 and 9146/20-11-11 can be used
- Connection to HART-management systems
- Customized system cables type KS1 or YUC 40 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



05179E00

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

System Overview



05414E02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAI 141/143	8	9192/32	yes	9195/08H-YO1-01V1

Technical Data

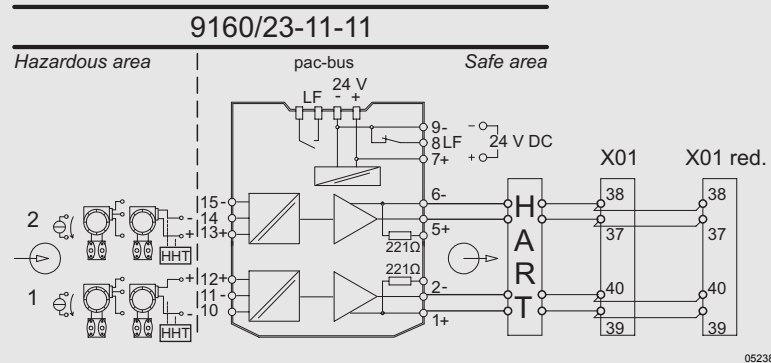
Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	19 V ... 31.2 V
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; 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 (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.

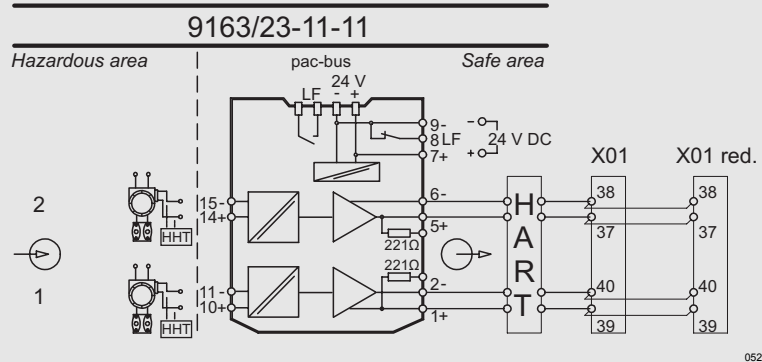
Transmitter supply unit (AI)

for 2-, 3-wire transmitter and mA-sources
for 2-wire transmitter with HART



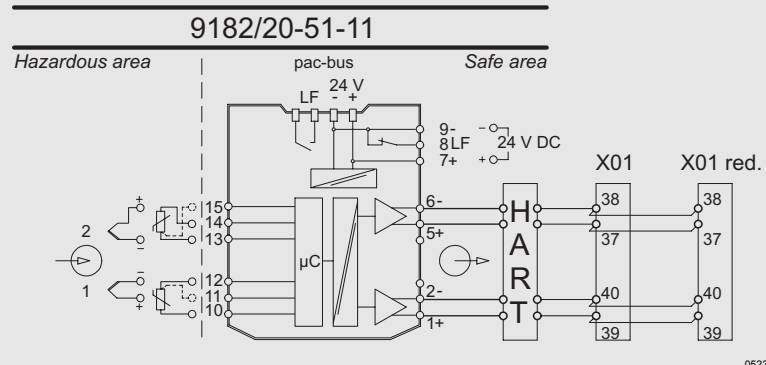
Isolating repeater (AI)

for 4-wire transmitter and mA-sources
bi-directional HART communication



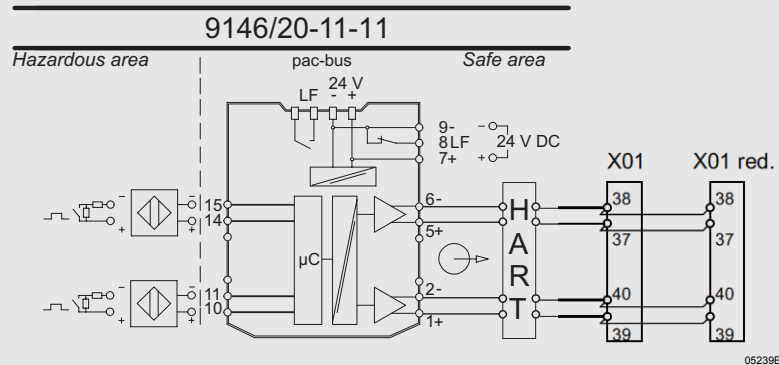
Temperature transmitter (AI)

for resistance thermometer, thermocouple and RTD
(Configuration by means of DIP switches or ISpac Wizard software)



Frequency transmitter

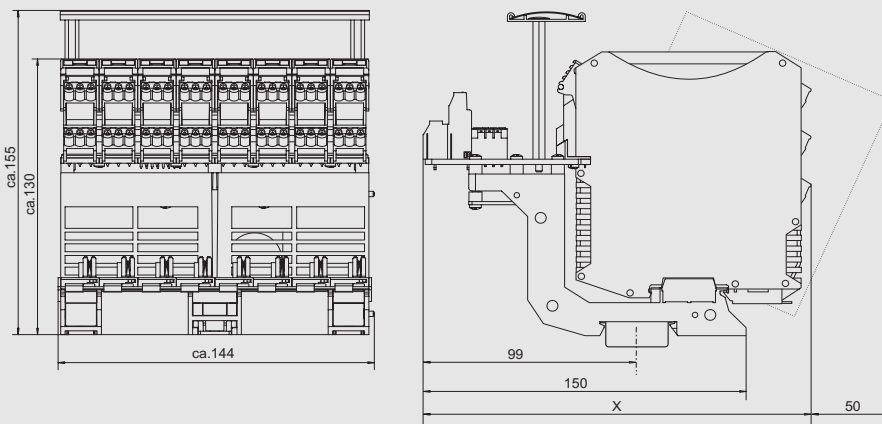
The frequency transmitter allows to monitor the speed of rotating devices in the hazardous area



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

STAHL

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	input no.	pin X01 (ATK4A + KS1)		pin X01 red. (ATK4A + KS1)	
1)								
10	+	1	1	1	+	39	+	39
11	-				-	40	-	40
14	+	2		2	+	37	+	37
15	-				-	38	-	38
10	+	3	2	3	+	35	+	35
11	-				-	36	-	36
14	+	4		4	+	33	+	33
15	-				-	34	-	34
10	+	5	3	5	+	31	+	31
11	-				-	32	-	32
14	+	6		6	+	29	+	29
15	-				-	30	-	30
10	+	7	4	7	+	27	+	27
11	-				-	28	-	28
14	+	8		8	+	25	+	25
15	-				-	26	-	26
10	+	9	5	9	+	23	+	23
11	-				-	24	-	24
14	+	10		10	+	21	+	21
15	-				-	22	-	22
10	+	11	6	11	+	19	+	19
11	-				-	20	-	20
14	+	12		12	+	17	+	17
15	-				-	18	-	18
10	+	13	7	13	+	15	+	15
11	-				-	16	-	16
14	+	14		14	+	13	+	13
15	-				-	14	-	14
10	+	15	8	15	+	11	+	11
11	-				-	12	-	12
14	+	16		16	+	9	+	9
15	-				-	10	-	10

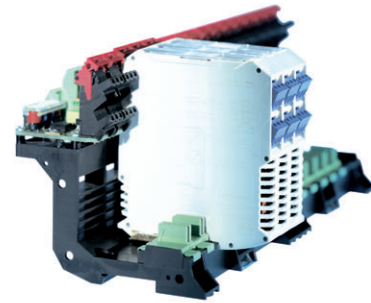
05320E02

1) Different possibilities of field device connections

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/16H-YO1-01V1

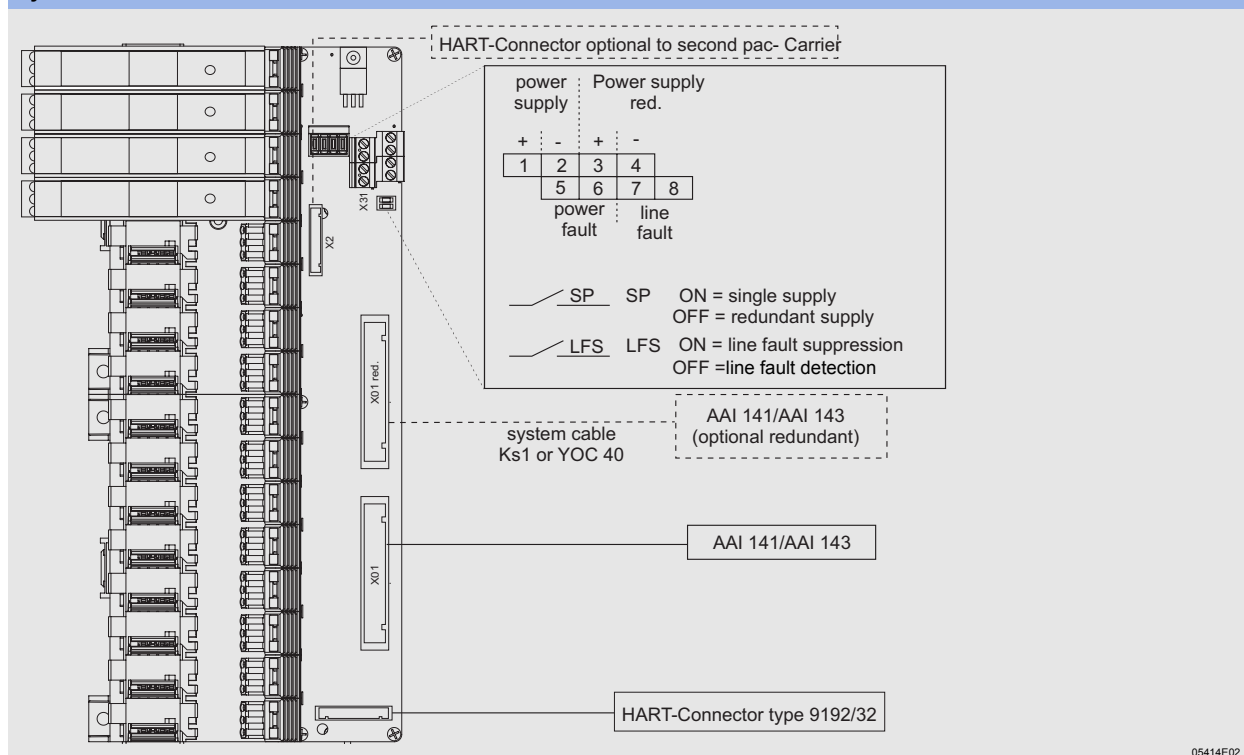
- For Yokogawa / Centum VP / AAI 141 / AAI 143
- Signal types: 16 x AI
- pac-Carrier for 16 modules, i.e. up to 16 signals
- Ispac isolators AI 9160/13-11-11, 9163/13-11-11, 9182/10-51-11 and 9146/10-11-12 can be used
- Connection to HART-management systems
- Customized system cables type KS1 or YUC 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



05179E00

Comfortable and simple integration of the I.S. isolators Ispac into Yokogawa / Centum VP automation systems via system specific connection boards and system cables.

System Overview



05414E02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAI 141/143	16	9192/32	yes	9195/16H-YO1-01V1

Technical Data

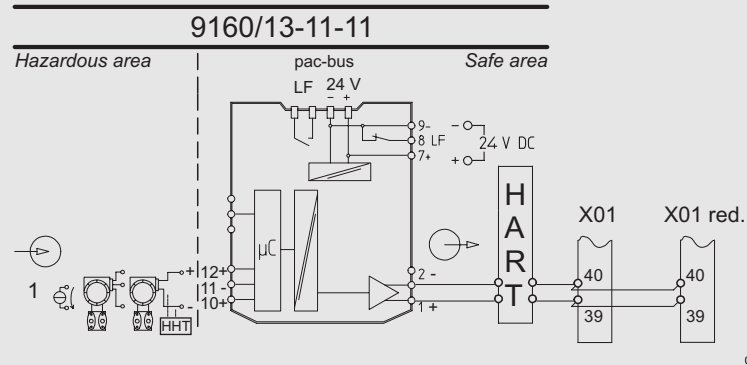
Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	19 V ... 31.2 V
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; 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 (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. 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.

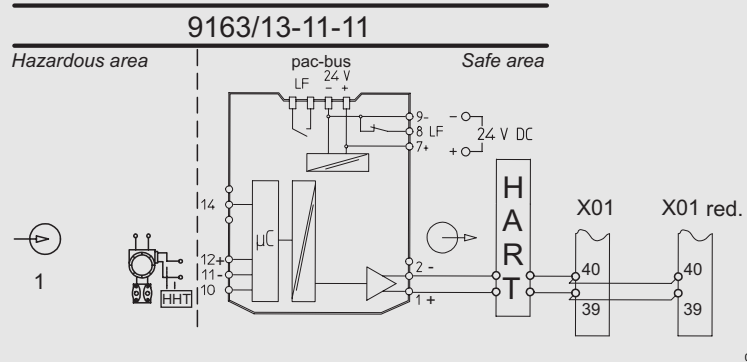
Transmitter supply unit (AI)

for 2-, 3-wire transmitter and mA-sources
for 2-wire transmitter with HART



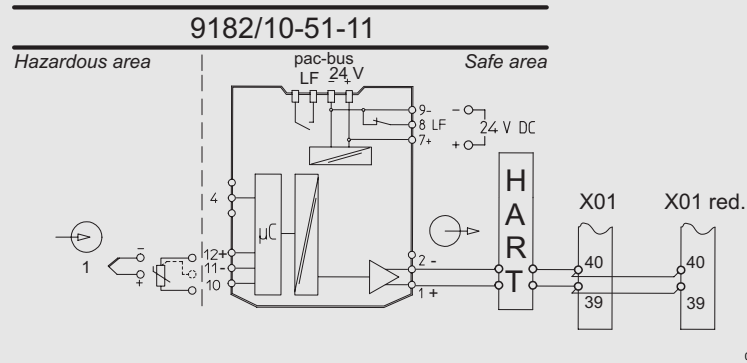
Isolating repeater (AI)

for 4-wire transmitter and mA-sources
bi-directional HART communication



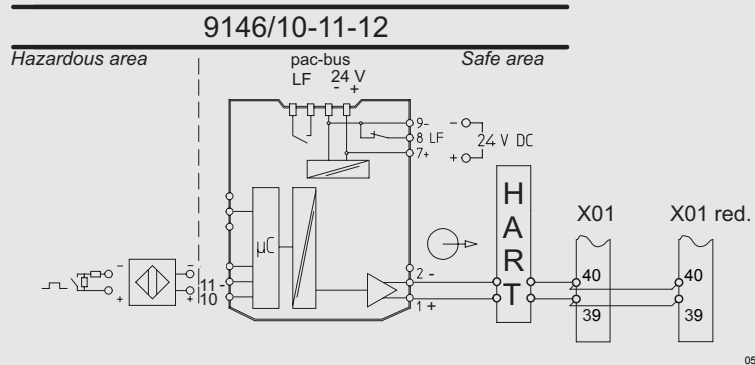
Temperature transmitter (AI)

for resistance thermometer, thermocouple and RTD
(Configuration by means of DIP switches or ISpac Wizard software)



Frequency transmitter

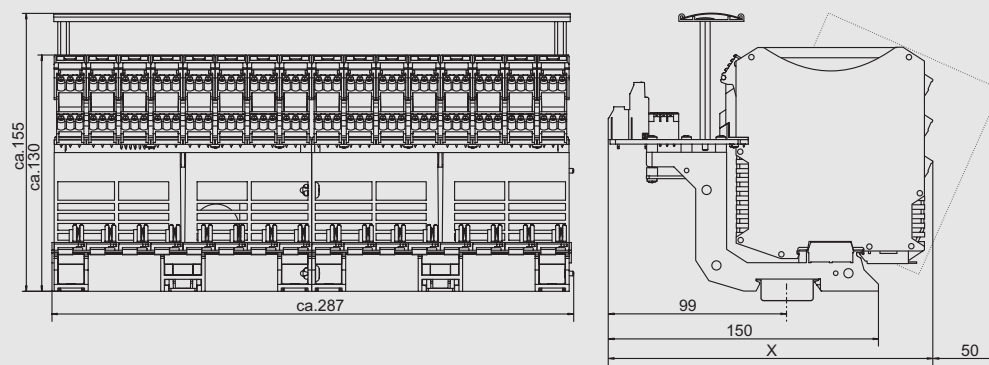
The frequency transmitter allows to monitor the speed of rotating devices in the hazardous area



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

STAHL

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 (ATK4A + KS1)		pin X01 red. (ATK4A + KS1)	
10	+	1	1	1	+	39	+	39
11	-				-	40	-	40
10	+	2	2	2	+	37	+	37
11	-				-	38	-	38
10	+	3	3	3	+	35	+	35
11	-				-	36	-	36
10	+	4	4	4	+	33	+	33
11	-				-	34	-	34
10	+	5	5	5	+	31	+	31
11	-				-	32	-	32
10	+	6	6	6	+	29	+	29
11	-				-	30	-	30
10	+	7	7	7	+	27	+	27
11	-				-	28	-	28
10	+	8	8	8	+	25	+	25
11	-				-	26	-	26
10	+	9	9	9	+	23	+	23
11	-				-	24	-	24
10	+	10	10	10	+	21	+	21
11	-				-	22	-	22
10	+	11	11	11	+	19	+	19
11	-				-	20	-	20
10	+	12	12	12	+	17	+	17
11	-				-	18	-	18
10	+	13	13	13	+	15	+	15
11	-				-	16	-	16
10	+	14	14	14	+	13	+	13
11	-				-	14	-	14
10	+	15	15	15	+	11	+	11
11	-				-	12	-	12
10	+	16	16	16	+	9	+	9
11	-				-	10	-	10

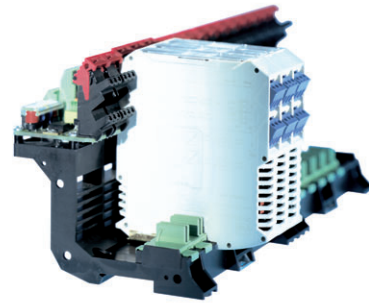
12484E02

1) Different possibilities of field device connections

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/08H-YO1-03V1

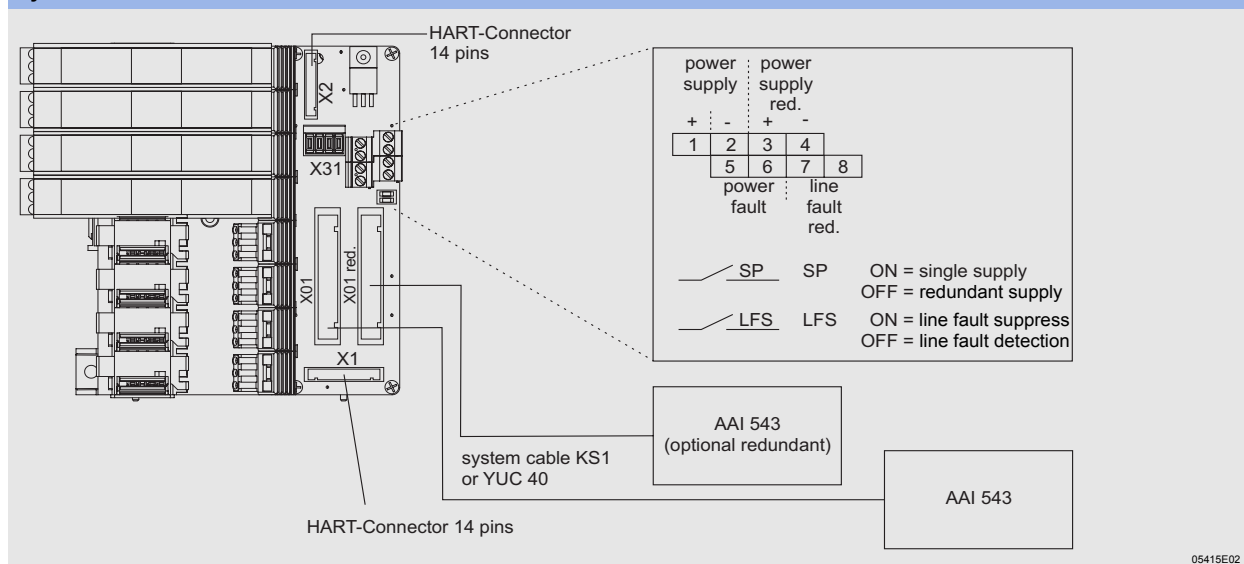
- For Yokogawa / Centum VP / AAI 543
- Signal types: 16 x AO
- pac-Carrier for 8 modules, i.e. up to 16 signals
- ISpac isolators AO 9165/26-11-13 and 9167/2.-11-00 can be used
- Connection to HART-management systems
- Customized system cables type KS1 or YUC 40 to automation system
- Redundant power 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



05179E00

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

System Overview



05415E02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAI 543	8	9192/32	yes	9195/08H-YO1-03V1

Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex 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	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 (specification see "signal loops")
Number of channels	16
Connection automation system (X01, X01 red.)	
Connection	2 x plug40 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

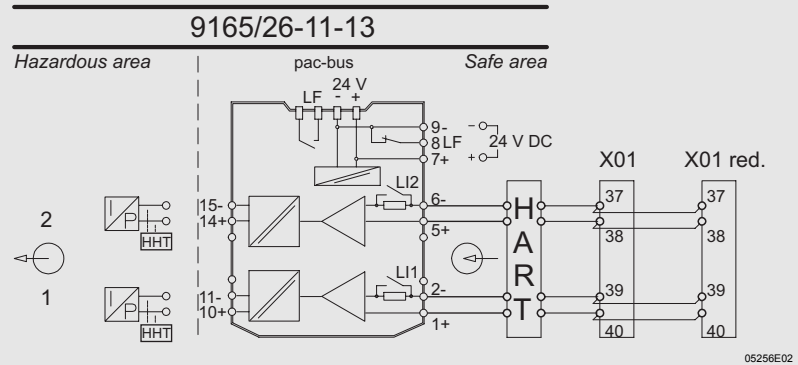
Signal Loops

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.

Isolating repeater (AO)

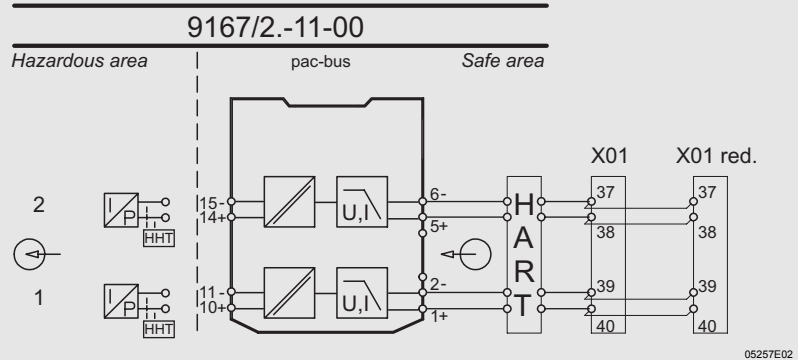
for control valves, i/p-converters or indicators
bi-directional HART communication

Alternative new isolator
type: 9165/26-11-11 Rev. C
available July 09



Isolating repeater (AO)

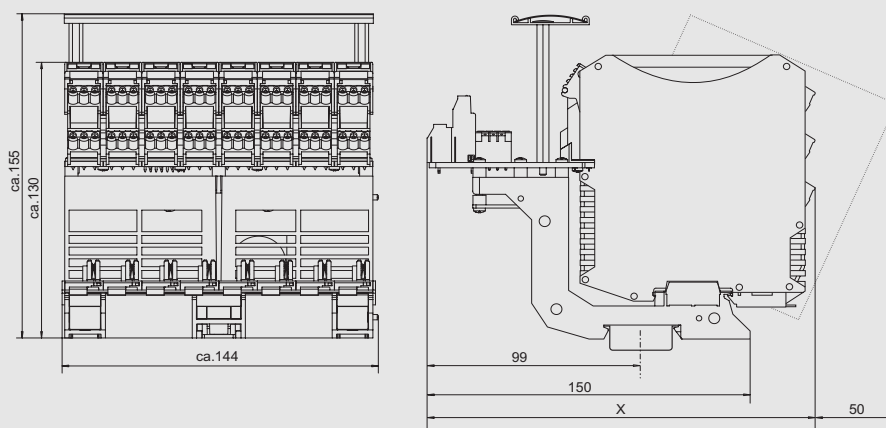
Loop-powered, for control valves,
i/p-converters or indicators
bi-directional HART communication



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

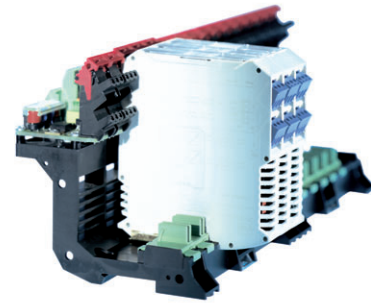
terminal i.s.		channel	carrier slot	output no.	pin X01 (ATK4A + KS1)		pin X01 red. (ATK4A + KS1)	
10	+	1	1	1	+	40	+	40
11	-				-	39	-	39
14	+	2		2	+	38	+	38
15	-				-	37	-	37
10	+	3	2	3	+	36	+	36
11	-				-	35	-	35
14	+	4		4	+	34	+	34
15	-				-	33	-	33
10	+	5	3	5	+	32	+	32
11	-				-	31	-	31
14	+	6		6	+	30	+	30
15	-				-	29	-	29
10	+	7	4	7	+	28	+	28
11	-				-	27	-	27
14	+	8		8	+	26	+	26
15	-				-	25	-	25
10	+	9	5	9	+	24	+	24
11	-				-	23	-	23
14	+	10		10	+	22	+	22
15	-				-	21	-	21
10	+	11	6	11	+	20	+	20
11	-				-	19	-	19
14	+	12		12	+	18	+	18
15	-				-	17	-	17
10	+	13	7	13	+	16	+	16
11	-				-	15	-	15
14	+	14		14	+	14	+	14
15	-				-	13	-	13
10	+	15	8	15	+	12	+	12
11	-				-	11	-	11
14	+	16		16	+	10	+	10
15	-				-	9	-	9

05318E02

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/08H-YO1-09V1

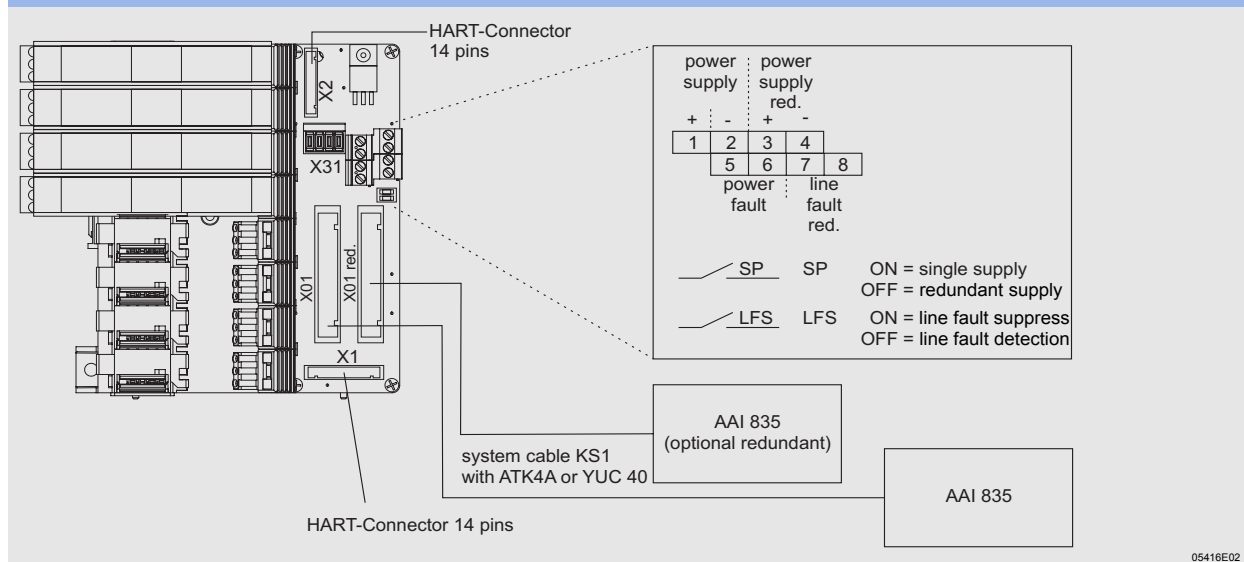
- For Yokogawa / Centum VP / AAI 835
- Signal types: 4 x AI , 4 x AO
- pac-Carrier for 8 modules, i.e. up to 8 signals
- ISpac isolators AI 9160/13-11-11, 9163/13-11-11, 9182/10-51-11, AO 9165/16-11-13, 9146/10-11-12, 9167/1.-11-00 can be used
- Connection to HART-management systems
- Customized system 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



05179E00

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

System Overview



05416E02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAI 835	8	9192/32	yes	9195/08H-YO1-09V1

Technical Data

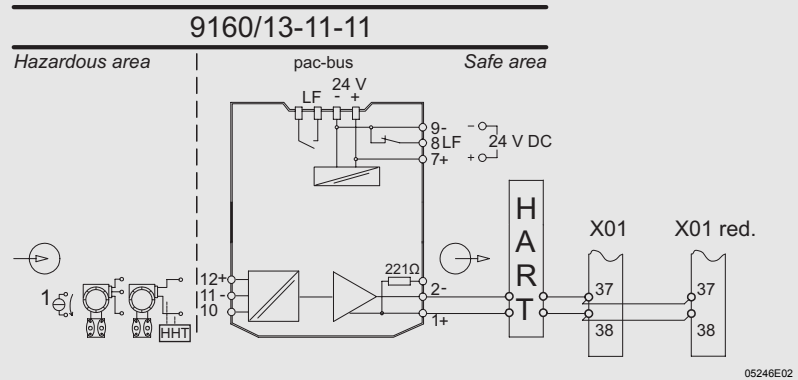
Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	19 V ... 31.2 V
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; 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 (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.

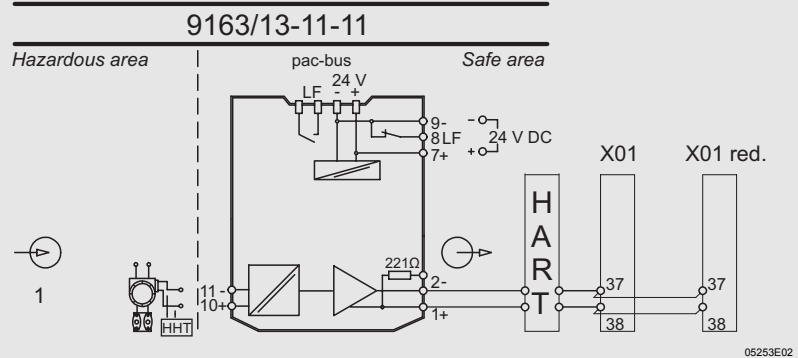
Transmitter supply unit (AI)

for 2-, 3-wire transmitter and
mA-sources for 2-wire transmitter with
HART
slot 1 ... 4



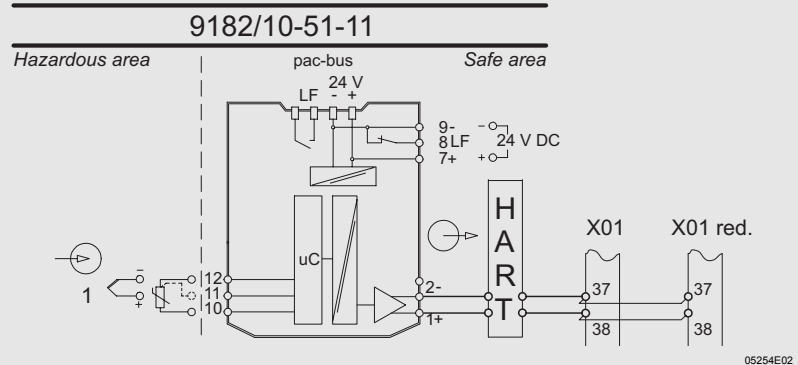
Isolating repeater (AI)

for 4-wire transmitter and mA-sources
bi-directional HART communication
slot 1 ... 4



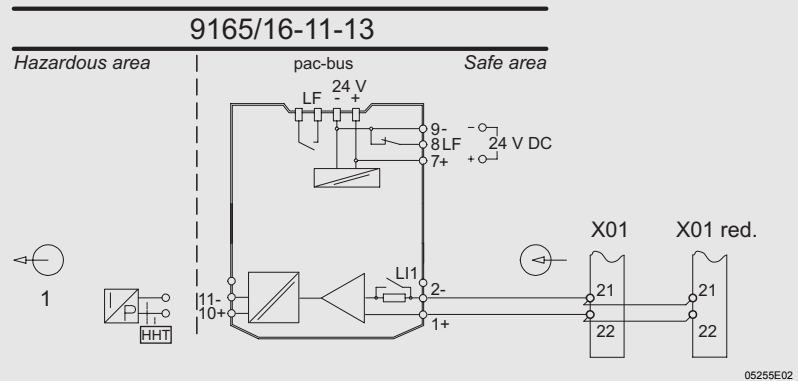
Temperature transmitter (AI)

for resistance thermometer,
thermocouple and RTD
(Configuration by means of DIP
switches or ISpac Wizard software)
slot 1 ... 4



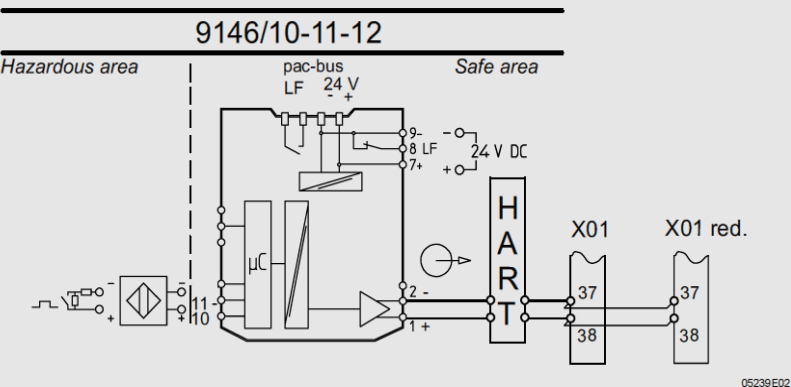
Isolating repeater (AO)

for control valves, i/p-converters or indicators
bi-directional HART communication
slot 5 ... 8

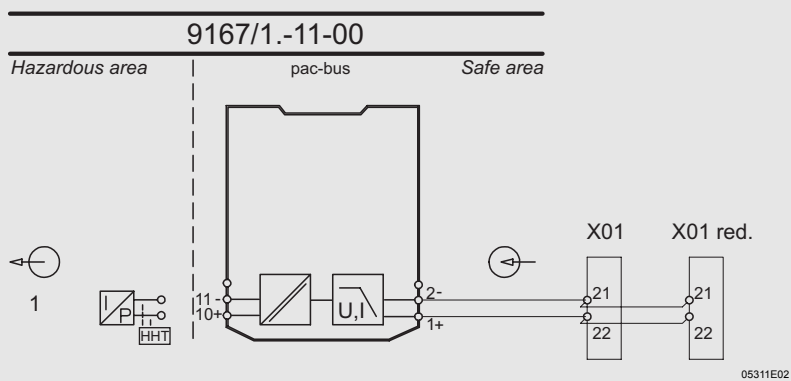


Signal Loops

Frequency transmitter
The frequency transmitter allows to monitor the speed of rotating devices in the hazardous area



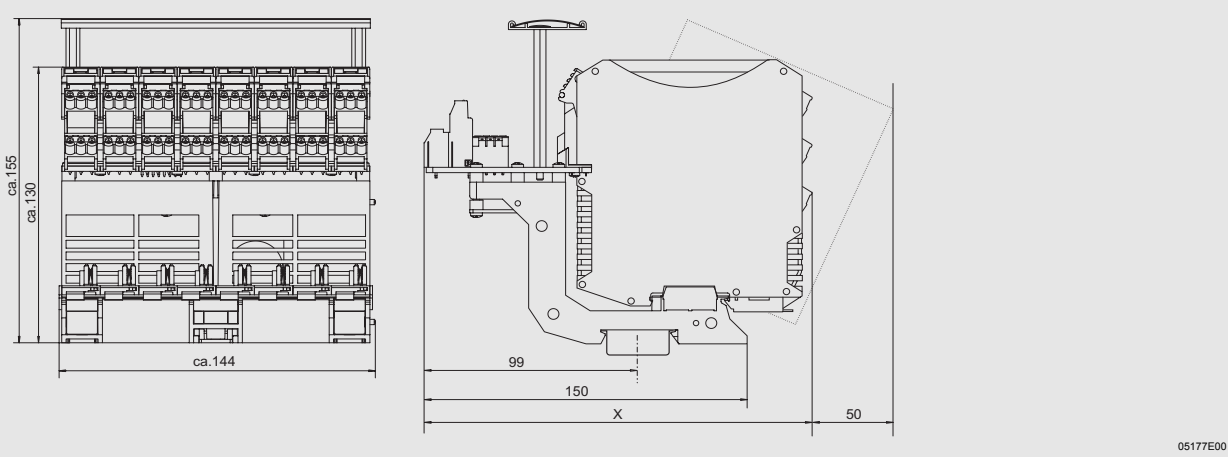
Isolating repeater (AO)
Loop-powered, for control valves, i/p-converters or indicators bi-directional HART communication slot 5 ... 8



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 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	output / input no.	pin X01 (ATK4A + KS1)		pin X01 red. (ATK4A + KS1)	
10 1)	+	1	1	input 1	+	38	+	38
11 1)	-				-	37	-	37
10 1)	+	2	2	input 2	+	34	+	34
11 1)	-				-	33	-	33
10 1)	+	3	3	input 3	+	30	+	30
11 1)	-				-	29	-	29
10 1)	+	4	4	input 4	+	26	+	26
11 1)	-				-	25	-	25
10	+	5	5	output 1	+	22	+	22
11	-				-	21	-	21
10	+	6	6	output 2	+	18	+	18
11	-				-	17	-	17
10	+	7	7	output 3	+	14	+	14
11	-				-	13	-	13
10	+	8	8	output 4	+	10	+	10
11	-				-	9	-	9

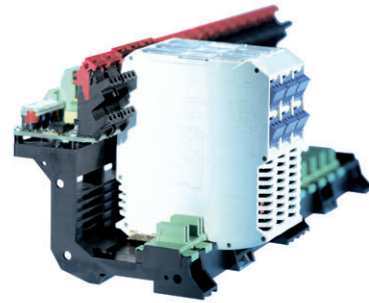
05317E02

1) Different possibilities of field device connections

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier
Type 9195/08H-YO1-04V1

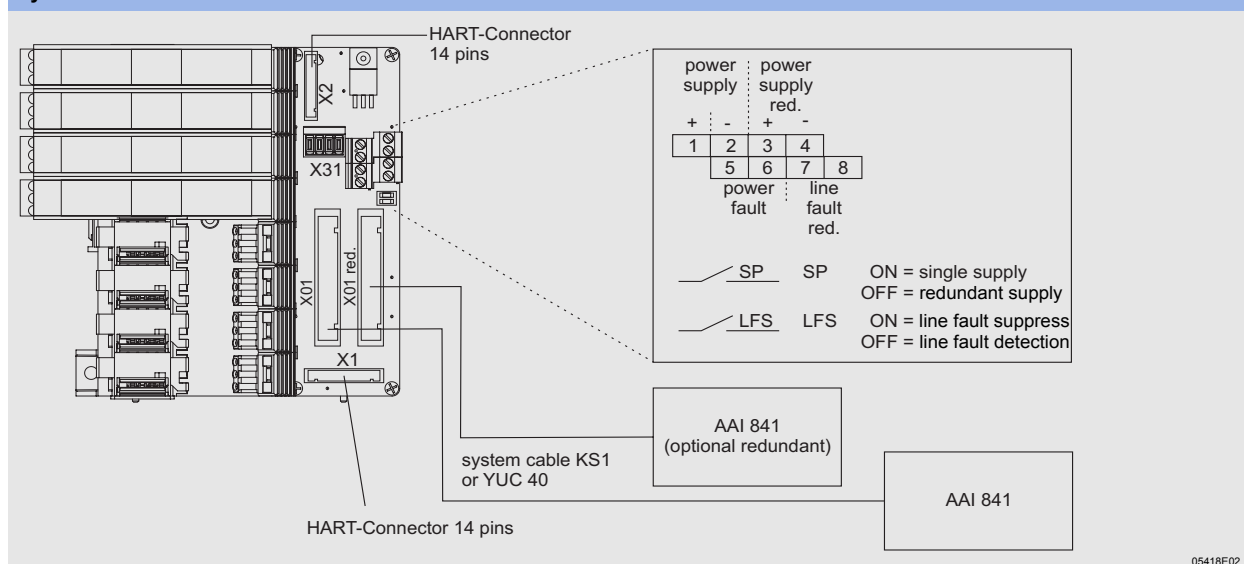
- **For Yokogawa / Centum VP / AAI 841**
- Signal types: 8 x AI + 8 x AO
- pac-Carrier for 8 modules, i.e. up to 16 signals
- ISpac isolators AI 9160/23-11-11, 9163/23-11-11, 9182/20-51-11, 9146/20-11-11 and AO 9165/26-11-11 or 9167/24-11-00 can be used
- Connection to HART-management systems
- Customized 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



05179E00

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

System Overview



05418F02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAI 841	8	9192/32	yes	9195/08H-YO1-04V1

Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex 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	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 (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

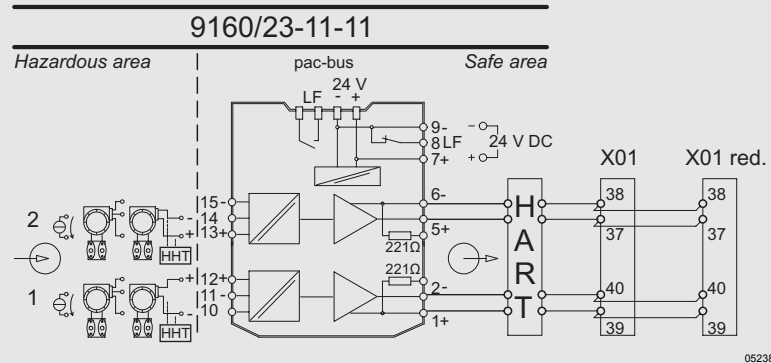
Signal Loops

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
slot 1 ... 4

Alternative isolator with passive output: 9160/23-10-11

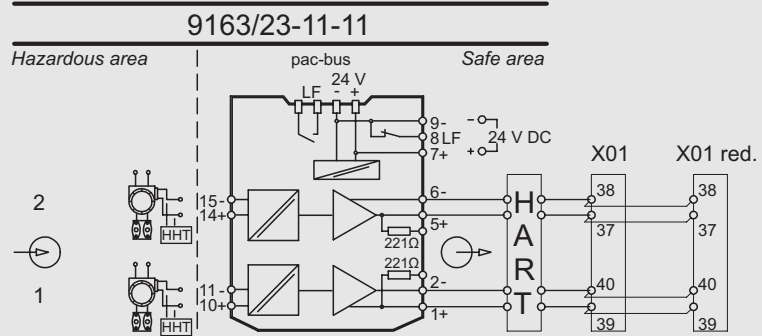


05238E02

Isolating repeater (AI)

for 4-wire transmitter and mA-sources bi-directional HART communication
slot 1 ... 4

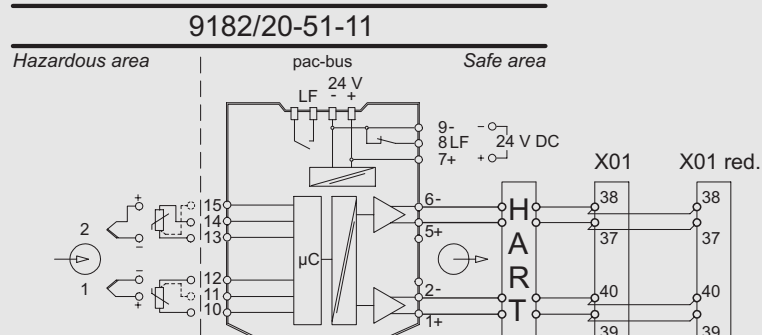
Alternative isolator with passive output: 9163/23-10-11



05237E02

Temperature transmitter (AI)

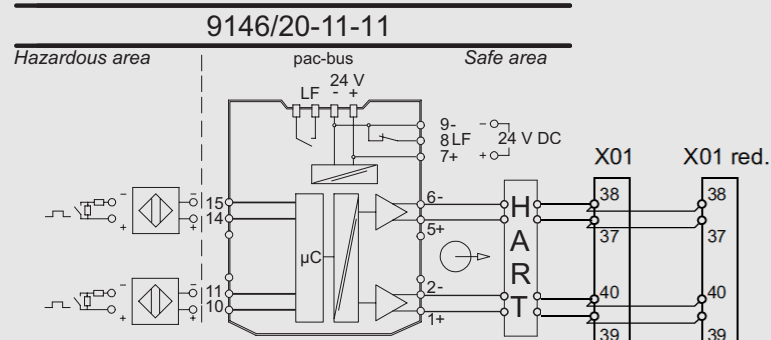
for resistance thermometer, thermocouple and RTD
(Configuration by means of DIP switches or ISpac Wizard software)
slot 1 ... 4



05239E02

Frequency transmitter

The frequency transmitter allows to monitor the speed of rotating devices in the hazardous area



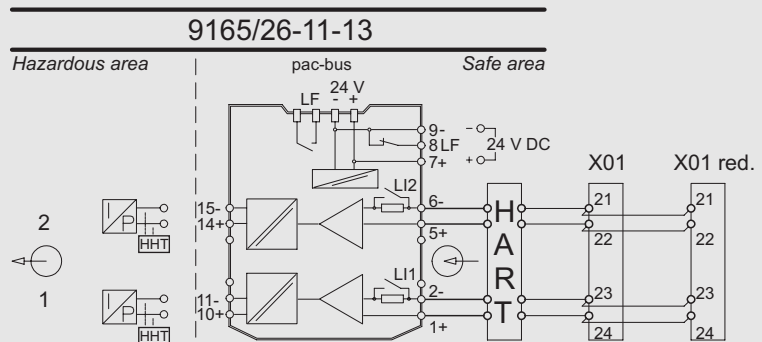
05242E02

Signal Loops

Isolating repeater (AO)

for control valves, i/p-converters or indicators
bi-directional HART communication
slot 5 ... 8

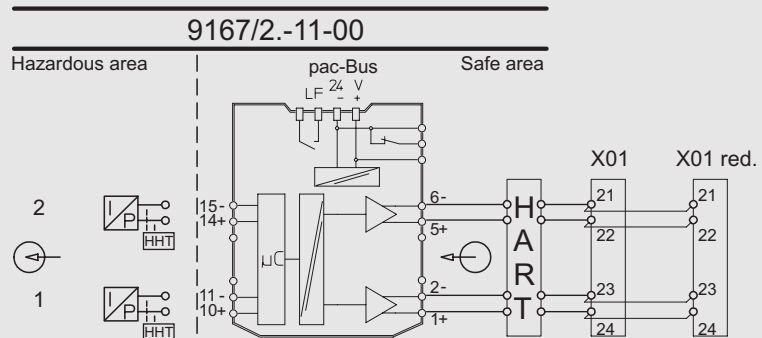
Alternative new isolator
type: 9165/26-11-11 Rev. C
available July 09



05242E02

Isolating repeater (AO)

Loop-powered, for control valves,
i/p-converters or indicators
bi-directional HART communication

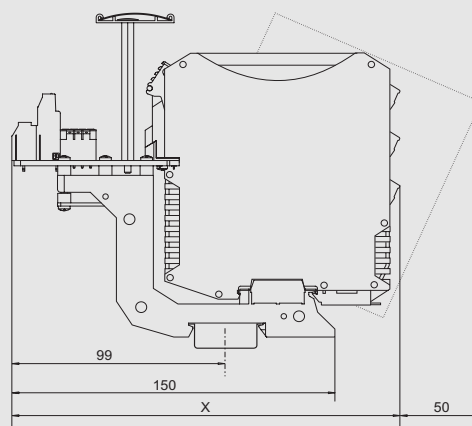
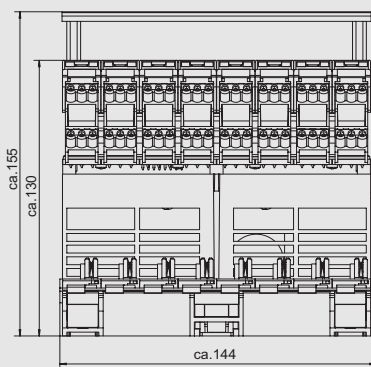


05242E02

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 / input no.	pin X01 (ATK4A + KS1)		pin X01 red. (ATK4A + KS1)	
10 1)	+	1	1	input 1	+	39	+	39
11 1)	-				-	40	-	40
14 1)	+	2		input 2	+	37	+	37
15 1)	-				-	38	-	38
10 1)	+	3	2	input 3	+	35	+	35
11 1)	-				-	36	-	36
14 1)	+	4		input 4	+	33	+	33
15 1)	-				-	34	-	34
10 1)	+	5	3	input 5	+	31	+	31
11 1)	-				-	32	-	32
14 1)	+	6		input 6	+	29	+	29
15 1)	-				-	30	-	30
10 1)	+	7	4	input 7	+	27	+	27
11 1)	-				-	28	-	28
14 1)	+	8		input 8	+	25	+	25
15 1)	-				-	26	-	26
10	+	9	5	output 1	+	24	+	24
11	-				-	23	-	23
14	+	10		output 2	+	22	+	22
15	-				-	21	-	21
10	+	11	6	output 3	+	20	+	20
11	-				-	19	-	19
14	+	12		output 4	+	18	+	18
15	-				-	17	-	17
10	+	13	7	output 5	+	16	+	16
11	-				-	15	-	15
14	+	14		output 6	+	14	+	14
15	-				-	13	-	13
10	+	15	8	output 7	+	12	+	12
11	-				-	11	-	11
14	+	16		output 8	+	10	+	10
15	-				-	9	-	9

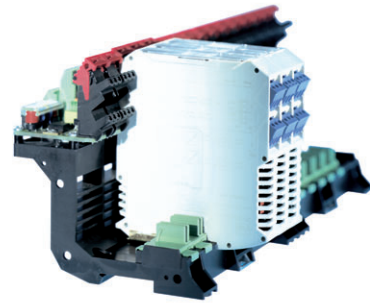
05316E02

1) Different possibilities of field device connections; for further informations see: instruction manual of 9160/23-11-11 or 9182/20-51-11

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/16A-YO1-04D

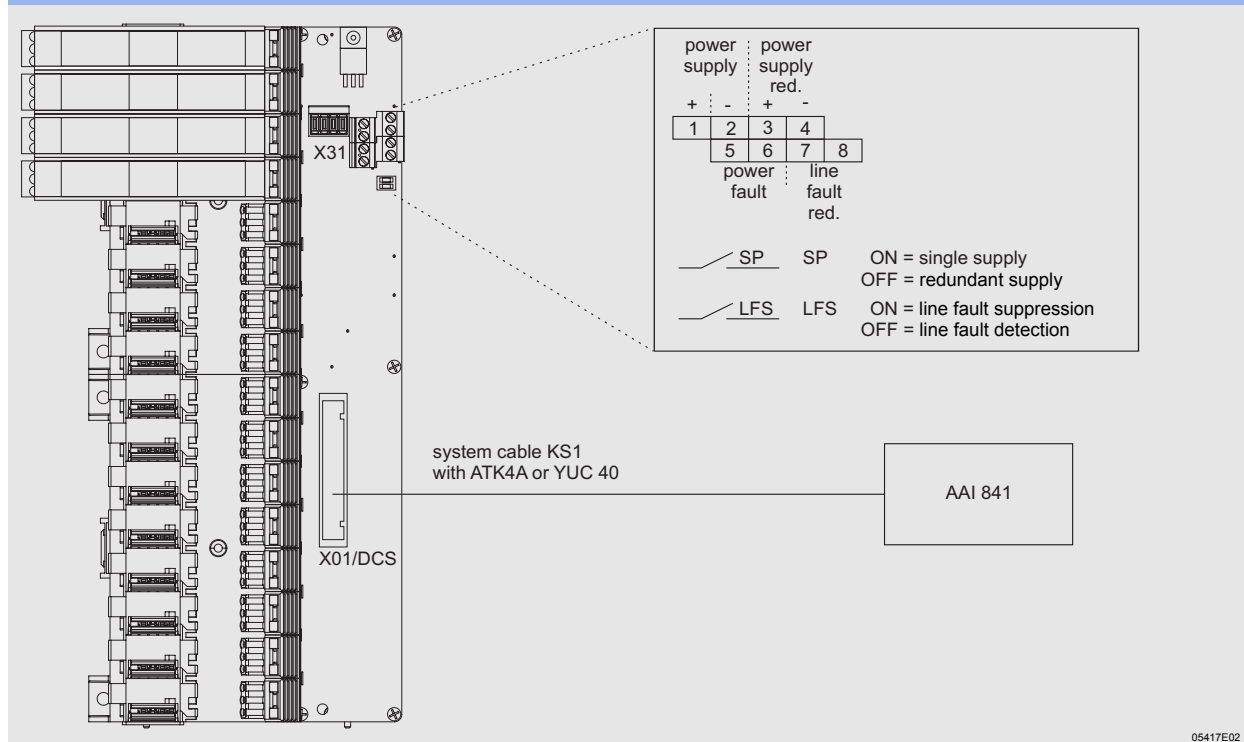
- For Yokogawa / Centum VP / AAI 841
- Signal types: 8 x AI + 8 x AO
- pac-Carrier for 16 modules, i.e. up to 16 signals
- ISpac isolators AI 9160/13-11-11, 9163/13-11-11, 9182/10-51-11, 9146/10-11-12, AO 9165/16-11-13 and 9167/14-11-00 can be used
- Customized system cables type KS1 or YUC 40 to automation 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



05179E00

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

System Overview



05417E02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAI 841	16	no	no	9195/16A-YO1-04D

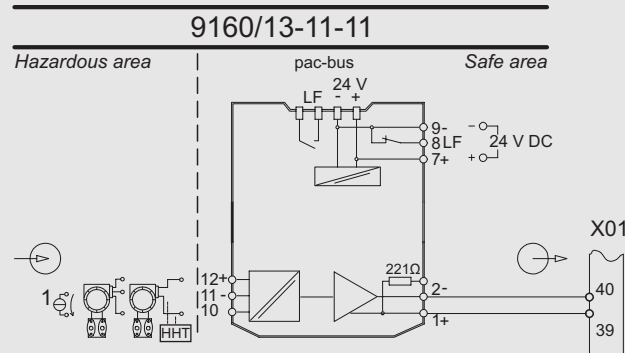
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex 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	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 (specification see "signal loops")
Number of channels	16
Connection automation system (X01/DCS)	
Connection	1 x plug 40 pole for KS1 or YUC 40 cable
Number of channels	16
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

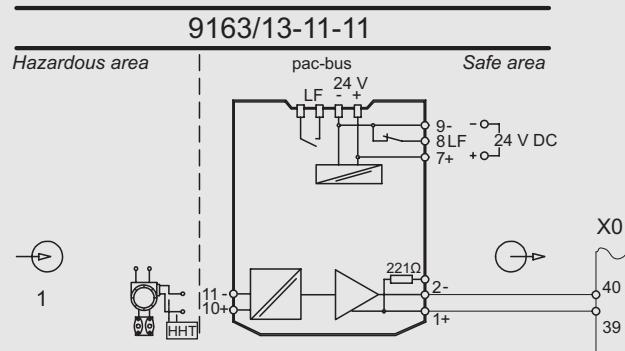
The diagrams below show typical applications. Please refer to the connection list to get the entire connection scheme. Basic technical parameters of the ISpac isolating repeaters can be found at the end of this document. The detailed specifications can be downloaded at: www.ispac.info.

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



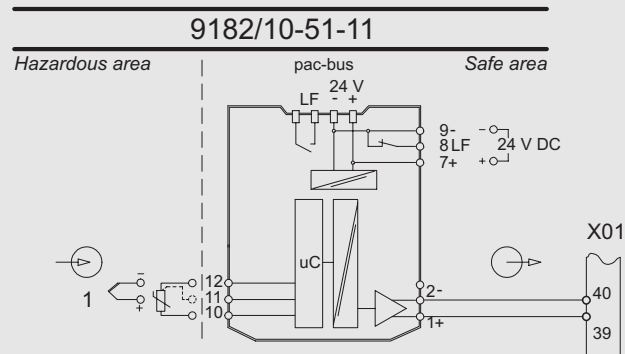
04859E02

Isolating repeater (AI)
for 4-wire transmitter and mA-sources
bi-directional HART communication



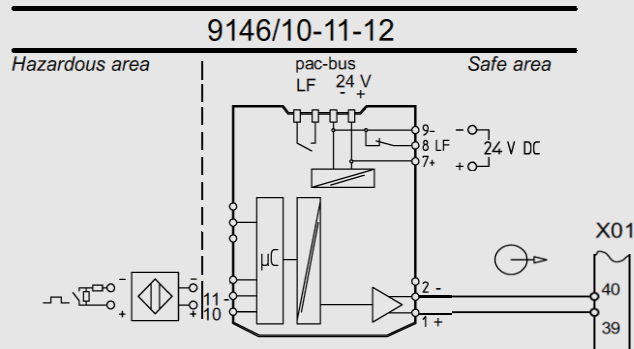
06940E02

Temperature transmitter (AI)
for resistance thermometer,
thermocouple and RTD
(Configuration by means of DIP
switches or ISpac Wizard software)



06941E02

Frequency Transmitter
The frequency transmitter allows
to monitor the speed of rotating
devices in the hazardous area

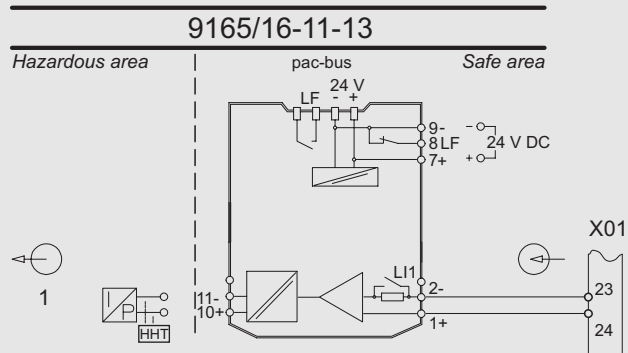


05239E02

Signal Loops

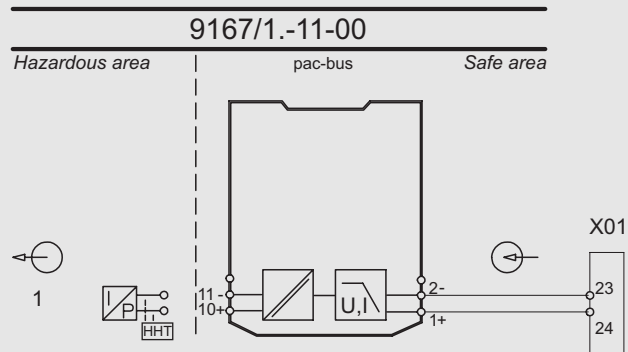
Isolating repeater (AO)

for control valves, i/p-converters or indicators
bi-directional HART communication



Isolating repeater (AO)

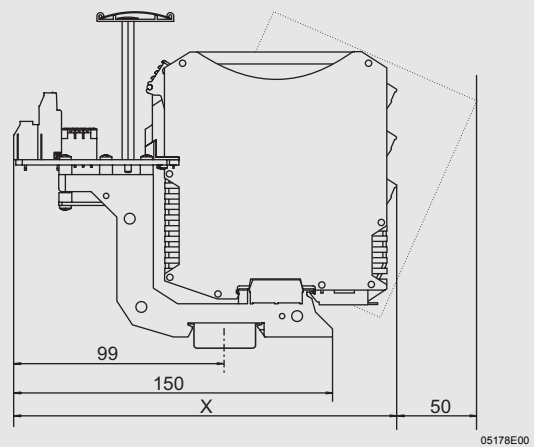
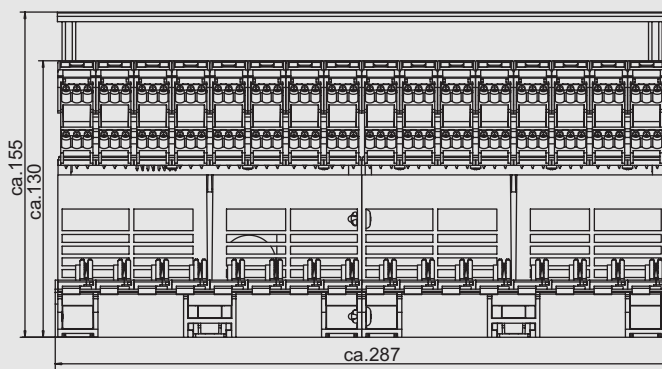
Loop-powered, for control valves,
i/p-converters or indicators
bi-directional HART communication



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 system cable KS1	
1*	+	1	1	input 1	+	39
	-				-	40
1*	+	2	2	input 2	+	37
	-				-	38
1*	+	3	3	input 3	+	35
	-				-	36
1*	+	4	4	input 4	+	33
	-				-	34
1*	+	5	5	input 5	+	31
	-				-	32
1*	+	6	6	input 6	+	29
	-				-	30
1*	+	7	7	input 7	+	27
	-				-	28
1*	+	8	8	input 8	+	25
	-				-	26
10	+	9	9	output 1	+	24
11	-				-	23
10	+	10	10	output 2	+	22
11	-				-	21
10	+	11	11	output 3	+	20
11	-				-	19
10	+	12	12	output 4	+	18
11	-				-	17
10	+	13	13	output 5	+	16
11	-				-	15
10	+	14	14	output 6	+	14
11	-				-	13
10	+	15	15	output 7	+	12
11	-				-	11
10	+	16	16	output 8	+	10
11	-				-	9

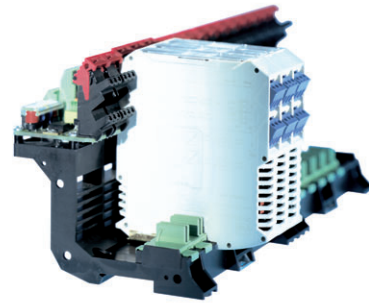
05335E02

1*: Different possibilities of field device connections

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/08A-YO1-10V1

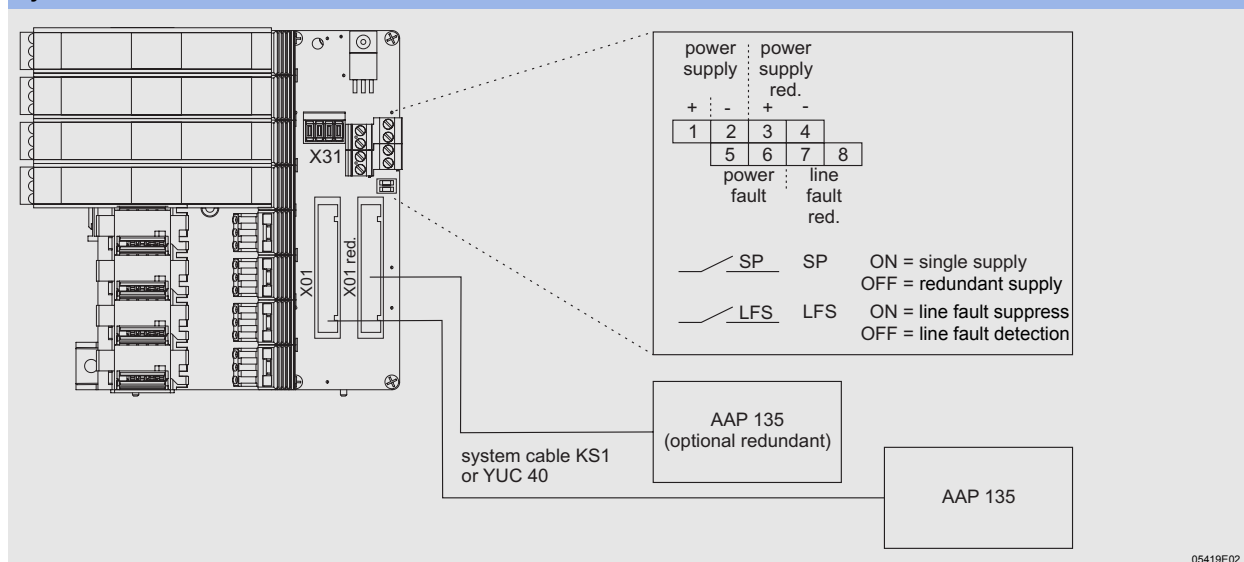
- For Yokogawa / Centum VP / AAP 135
- Signal types: 8 x DI (< 800 Hz)
- pac-Carrier for 8 modules, i.e. up to 8 signals
- Ispac isolators 9170/10-14-11 can be used
- Customized system cables type KS1 or YUC 40 to automation system
- Redundant power supply with message contact and exchangeable fuses
- 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



05179E00

Comfortable and simple integration of the I.S. isolators Ispac into Yokogawa / Centum VP automation systems via system specific connection boards and system cables.

System Overview



05419E02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAP 135	8	no	yes	9195/08A-YO1-10V1

Technical Data

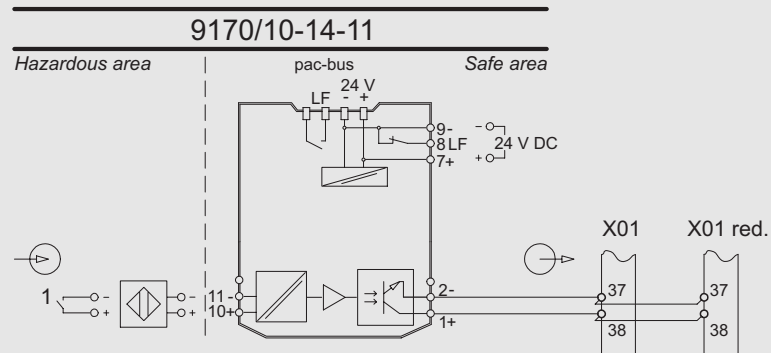
Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	19 V ... 31.2 V
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; 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 (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)
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

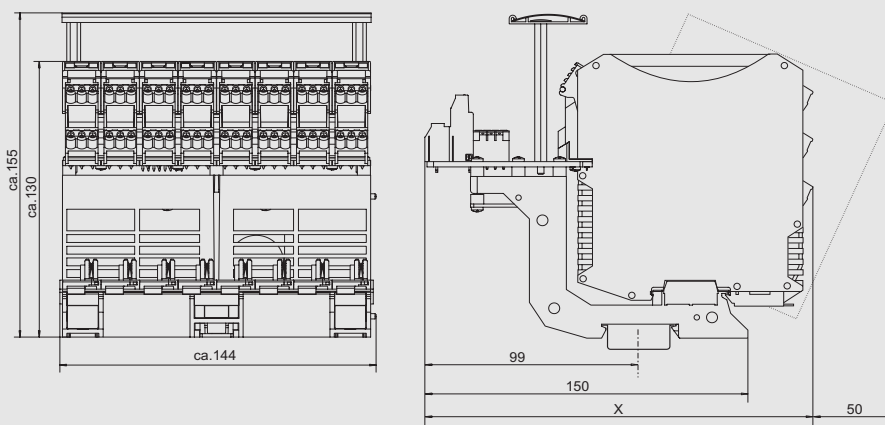


05222E02

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

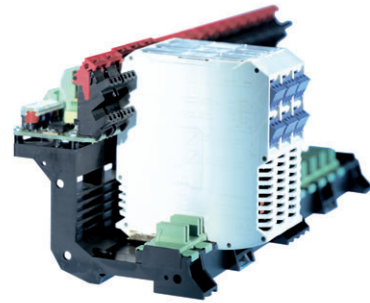
terminal i.s.		channel	carrier slot	input no.	pin X01 (ATK4A + KS1)		pin X01 red. (ATK4A + KS1)	
10	+	1	1	1	+	38	+	38
11	-				-	37	-	37
10	+	2	2	2	+	34	+	34
11	-				-	33	-	33
10	+	3	3	3	+	30	+	30
11	-				-	29	-	29
10	+	4	4	4	+	26	+	26
11	-				-	25	-	25
10	+	5	5	5	+	22	+	22
11	-				-	21	-	21
10	+	6	6	6	+	18	+	18
11	-				-	17	-	17
10	+	7	7	7	+	14	+	14
11	-				-	13	-	13
10	+	8	8	8	+	10	+	10
11	-				-	9	-	9

05312e02

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/08A-YO1-11V1

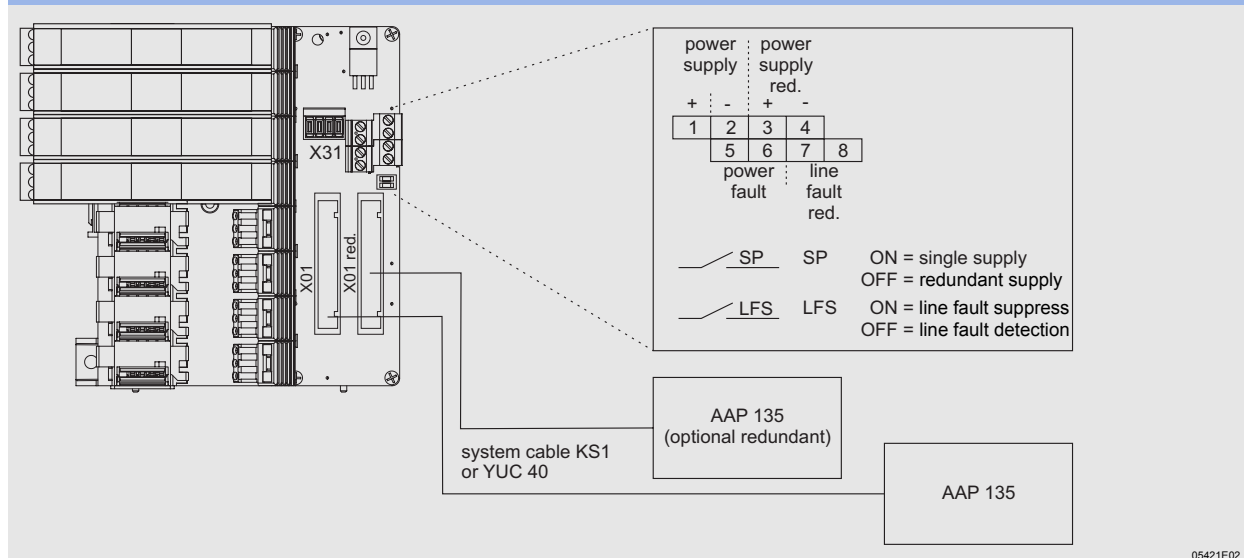
- For Yokogawa / Centum VP / AAP 135
- Signal types: 8 x DI (> 800 Hz)
- pac-Carrier for 8 modules, i.e. up to 8 signals
- ISpac isolators 9170/10-14-11 can be used
- Customized system cables type KS1 or YUC 40 to automation system
- Redundant power supply with message contact and exchangeable fuses
- 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



05179E00

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

System Overview



05421E02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAP 135	8	no	yes	9195/08A-YO1-11V1

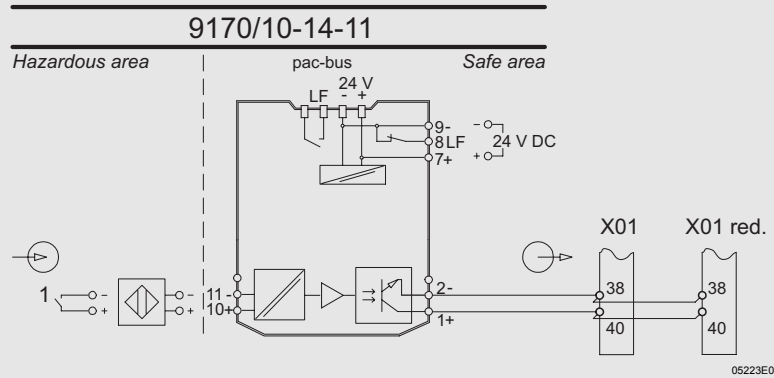
Technical Data

Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex 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	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 (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)
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.

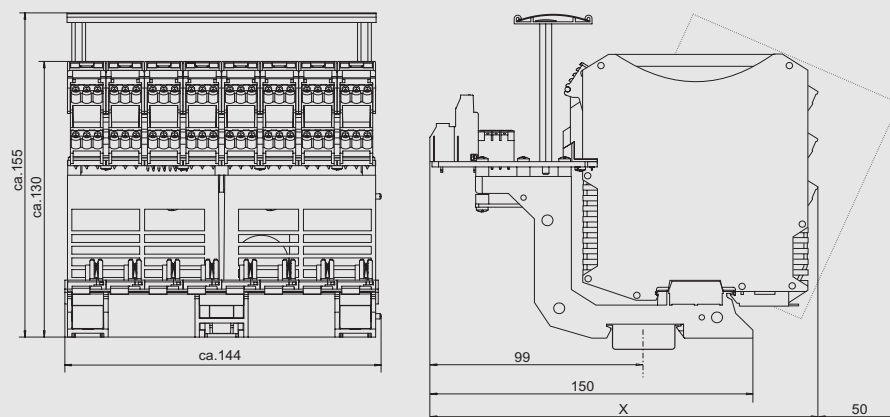
Switching repeater (DI)
for NAMUR proximity switches and contacts



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

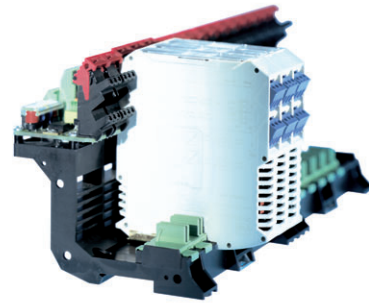
terminal i.s.		channel	carrier slot	input no.	pin X01 (ATK4A + KS1)		pin X01 red. (ATK4A + KS1)	
10	+	1	1	1	+	40	+	40
11	-				-	38	-	38
10	+	2	2	2	+	36	+	36
11	-				-	34	-	34
10	+	3	3	3	+	32	+	32
11	-				-	30	-	30
10	+	4	4	4	+	28	+	28
11	-				-	26	-	26
10	+	5	5	5	+	24	+	24
11	-				-	22	-	22
10	+	6	6	6	+	20	+	20
11	-				-	18	-	18
10	+	7	7	7	+	16	+	16
11	-				-	14	-	14
10	+	8	8	8	+	12	+	12
11	-				-	10	-	10

05313e02

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/08H-YO1-02V1

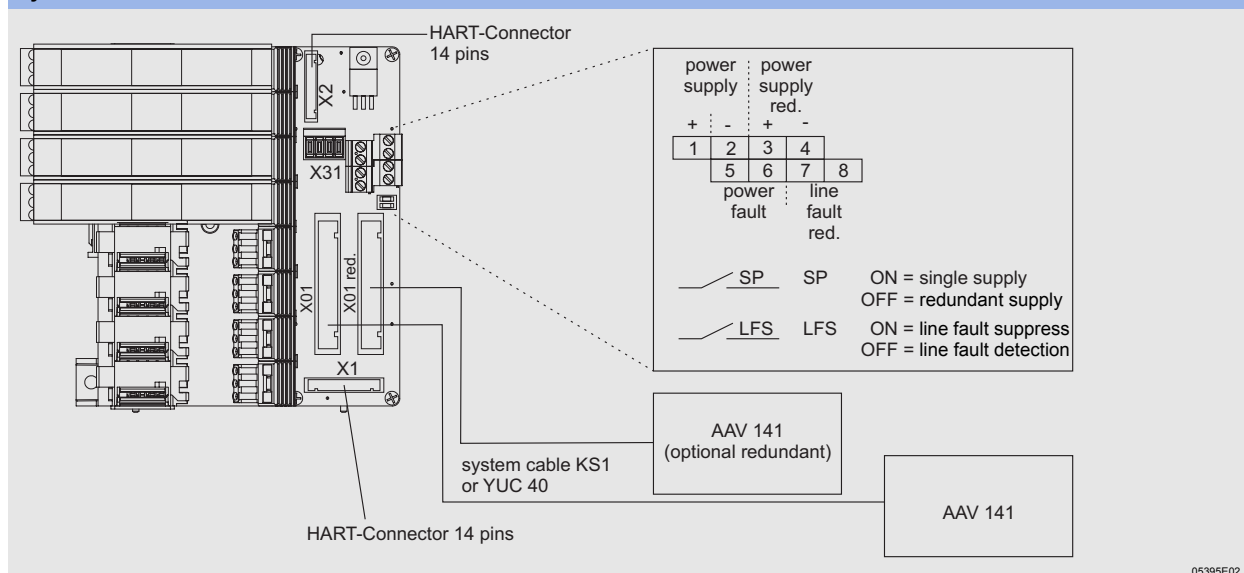
- For Yokogawa / Centum VP / AAV 141
- Signal types: 16 x AI
- pac-Carrier for 8 modules, i.e. up to 16 signals
- Ispac isolators AI 9160/23-11-11, 9163/23-11-11, 9182/20-51-11 and 9146/20-11-11 can be used
- Connection to HART-management systems
- Customized system cables type KS1 or YUC 40 to automation 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



05179E00

Comfortable and simple integration of the I.S. isolators Ispac into Yokogawa / Centum VP automation systems via system specific connection boards and system cables.

System Overview



05395E02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAV 141	8	9192/32	yes	9195/08H-YO1-02V1

Technical Data

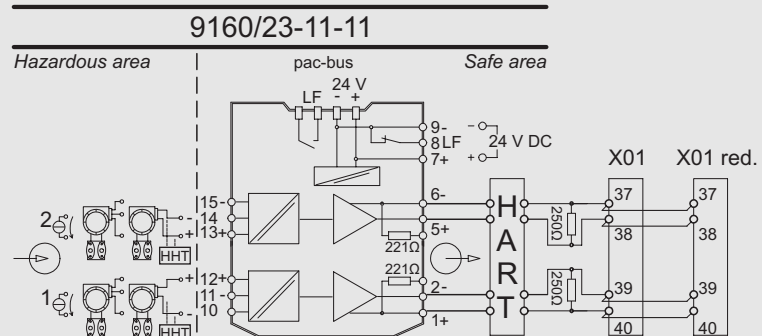
Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	19 V ... 31.2 V
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; 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 (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
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.

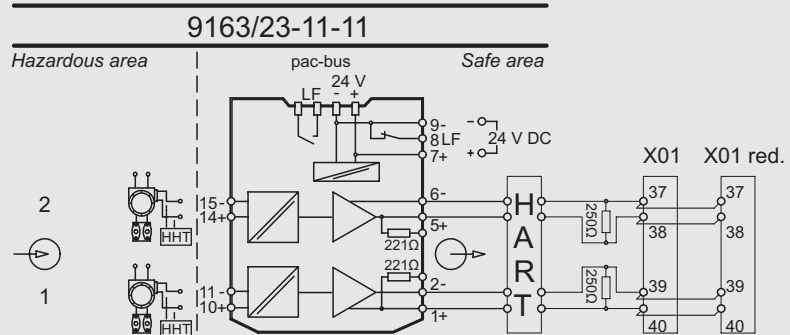
Transmitter supply unit (AI)

for 2-, 3-wire transmitter and mA-sources for 2-wire transmitter with HART



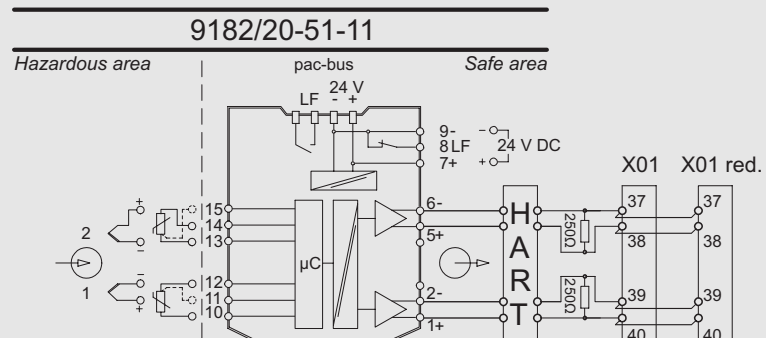
Isolating repeater (AI)

for 4-wire transmitter and mA-sources bi-directional HART communication



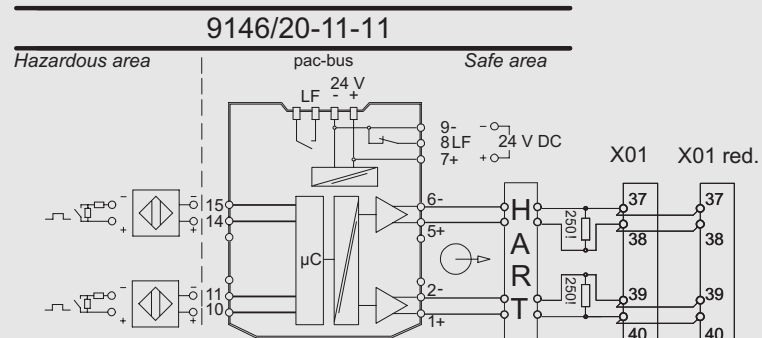
Temperature transmitter (AI)

for resistance thermometer, thermocouple and RTD (Configuration by means of DIP switches or ISpac Wizard software)



Frequency transmitter

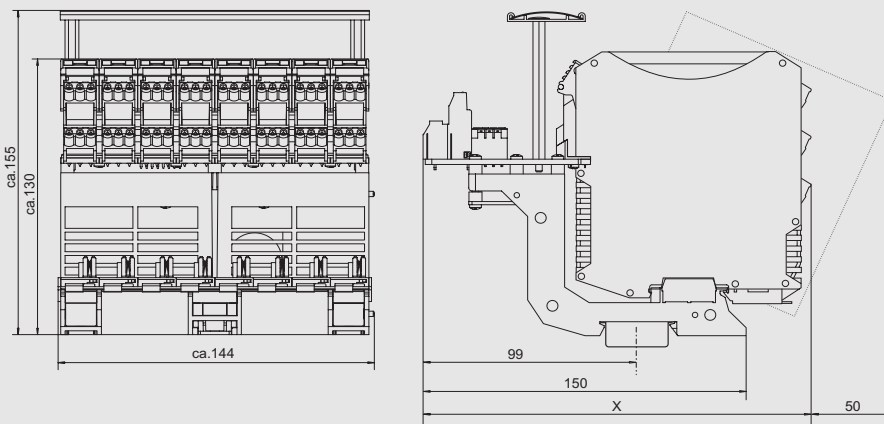
The frequency transmitter allows to monitor the speed of rotating devices in the hazardous area



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	input no.	pin X01 (ATK4A + KS1)		pin X01 red. (ATK4A + KS1)	
1)								
10	+	1	1	1	+	40	+	40
11	-				-	39	-	39
14	+	2		2	+	38	+	38
15	-				-	37	-	37
10	+	3	2	3	+	36	+	36
11	-				-	35	-	35
14	+	4		4	+	34	+	34
15	-				-	33	-	33
10	+	5	3	5	+	32	+	32
11	-				-	31	-	31
14	+	6		6	+	30	+	30
15	-				-	29	-	29
10	+	7	4	7	+	28	+	28
11	-				-	27	-	27
14	+	8		8	+	26	+	26
15	-				-	25	-	25
10	+	9	5	9	+	24	+	24
11	-				-	23	-	23
14	+	10		10	+	22	+	22
15	-				-	21	-	21
10	+	11	6	11	+	20	+	20
11	-				-	19	-	19
14	+	12		12	+	18	+	18
15	-				-	17	-	17
10	+	13	7	13	+	16	+	16
11	-				-	15	-	15
14	+	14		14	+	14	+	14
15	-				-	13	-	13
10	+	15	8	15	+	12	+	12
11	-				-	11	-	11
14	+	16		16	+	10	+	10
15	-				-	9	-	9

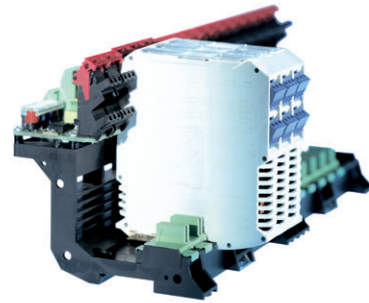
05182E02

1) Different possibilities of field device connections; for further informations see: instruction manual of 9160/23-11-11 or 9182/20-51-11

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/16A-YO1-02D

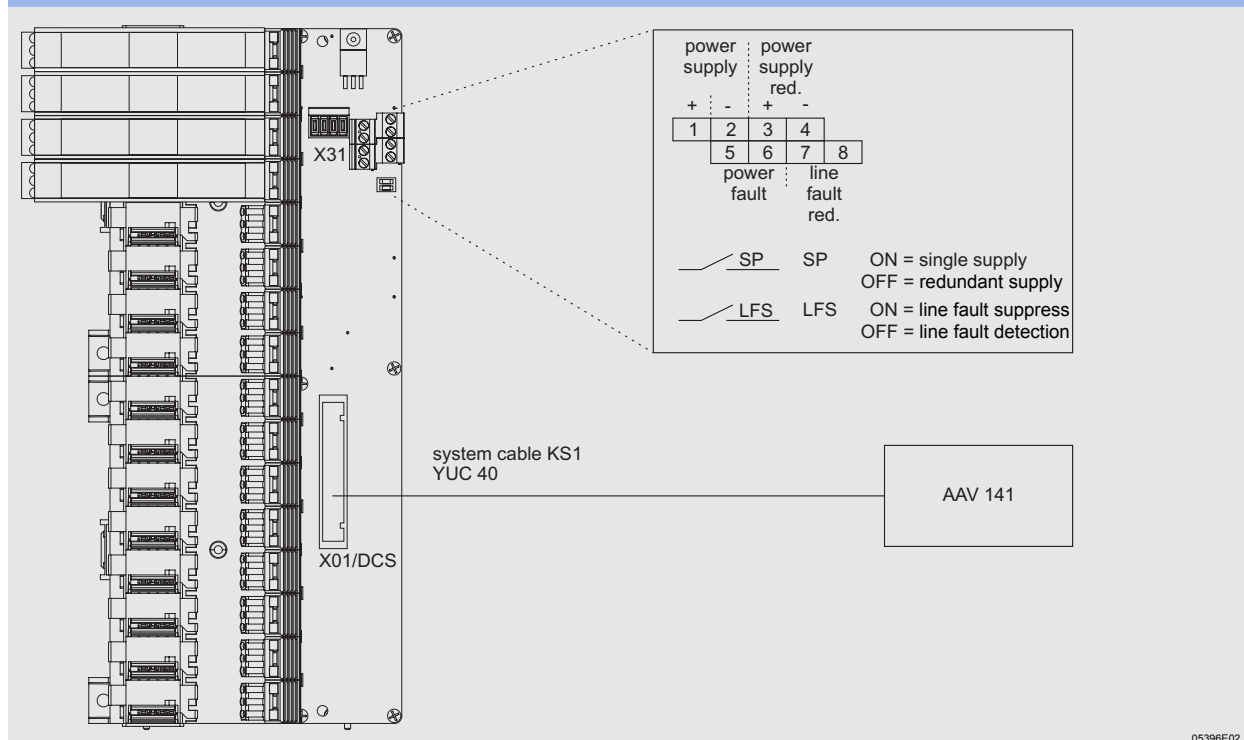
- For Yokogawa / Centum VP / AAV 141
- Signal types: 16 x AI
- pac-Carrier for 16 modules, i.e. up to 16 signals
- ISpac isolators 9160/13-11-11, 9163/13-11-11, 9182/10-51-11 and 9146/10-11-12 can be used
- Customized system cables type KS1 or YUC 40 to automation system
- Redundant power supply with 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



05179E00

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

System Overview



05396E02



Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	AAV 141	16	no	no	9195/16A-YO1-02D

Technical Data

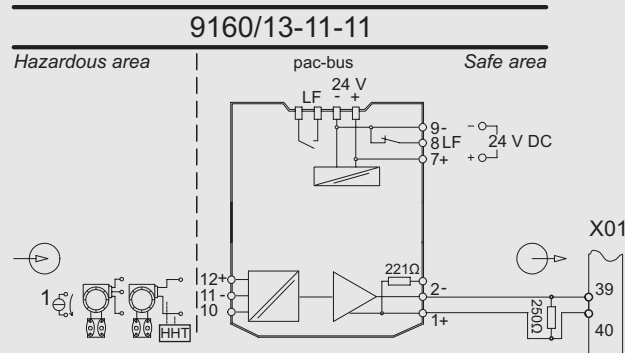
Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	19 V ... 31.2 V
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; 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 (specification see "signal loops")
Number of channels	16
Connection automation system (X01/DCS)	
Connection	1 x plug 40 pole for KS1 or YUC 40 cable
Number of channels	16
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)

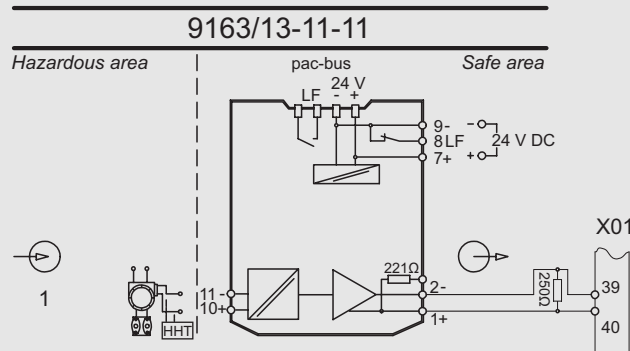
for 2-, 3-wire transmitter and mA-sources for 2-wire transmitter with HART



05444E02

Isolating repeater (AI)

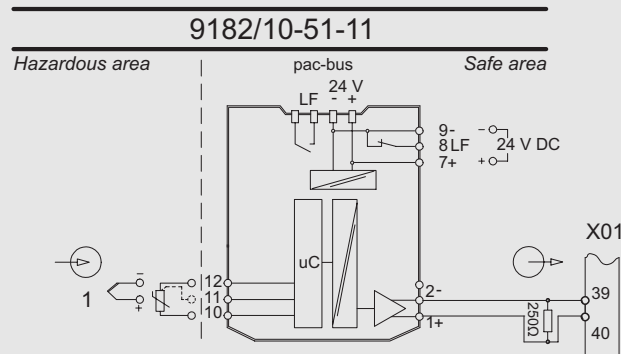
for 4-wire transmitter and mA-sources
bi-directional HART communication



05446E02

Temperature transmitter (AI)

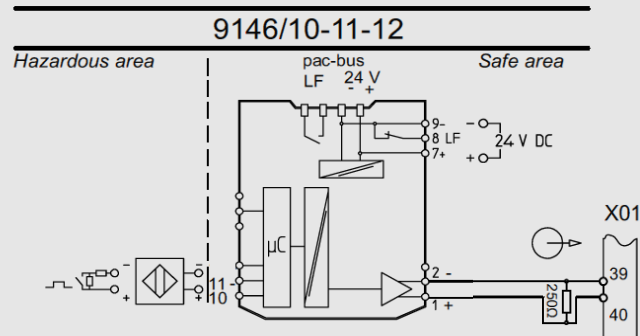
for resistance thermometer,
thermocouple and RTD
(Configuration by means of DIP
switches or ISpac Wizard software)



05447E02

Temperature transmitter (AI)

the frequency transmitter allows
to monitor the speed of rotating
devices in the hazardous area

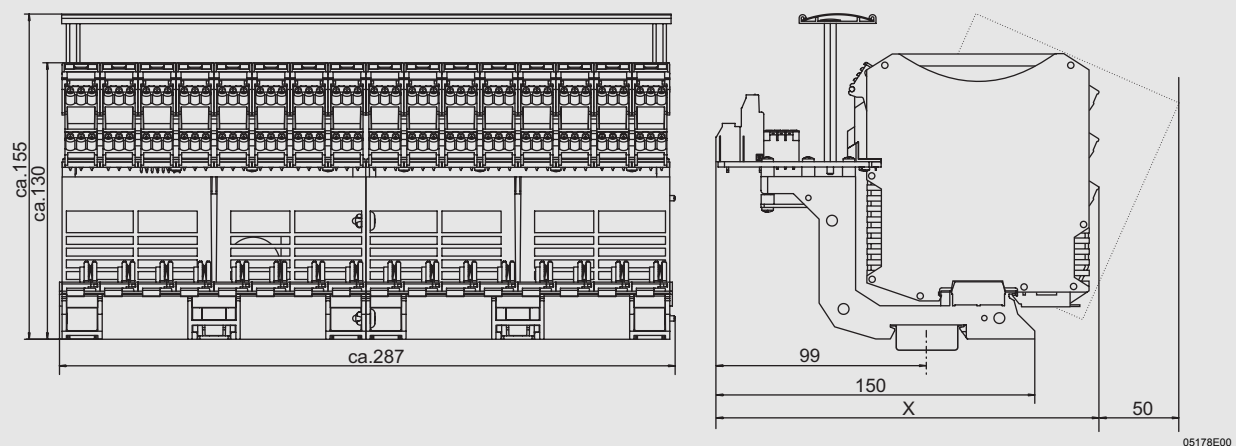


05447E02

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 system cable KS1	
1*	+	1	1	input 1	+	40
	-				-	39
1*	+	2	2	input 2	+	38
	-				-	37
1*	+	3	3	input 3	+	36
	-				-	35
1*	+	4	4	input 4	+	34
	-				-	33
1*	+	5	5	input 5	+	32
	-				-	31
1*	+	6	6	input 6	+	30
	-				-	29
1*	+	7	7	input 7	+	28
	-				-	27
1*	+	8	8	input 8	+	26
	-				-	25
1*	+	9	9	input 9	+	24
	-				-	23
1*	+	10	10	input 10	+	22
	-				-	21
1*	+	11	11	input 11	+	20
	-				-	19
1*	+	12	12	input 12	+	18
	-				-	17
1*	+	13	13	input 13	+	16
	-				-	15
1*	+	14	14	input 14	+	14
	-				-	13
1*	+	15	15	input 15	+	12
	-				-	11
1*	+	16	16	input 16	+	10
	-				-	9

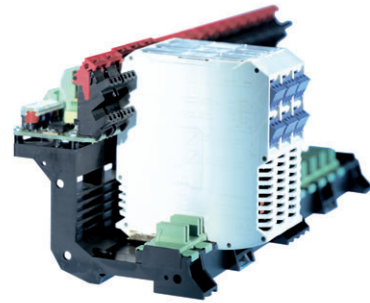
05326E02

*) Different possibilities of field device connections

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

pac-Carrier Type 9195/16A-YO1-06A2

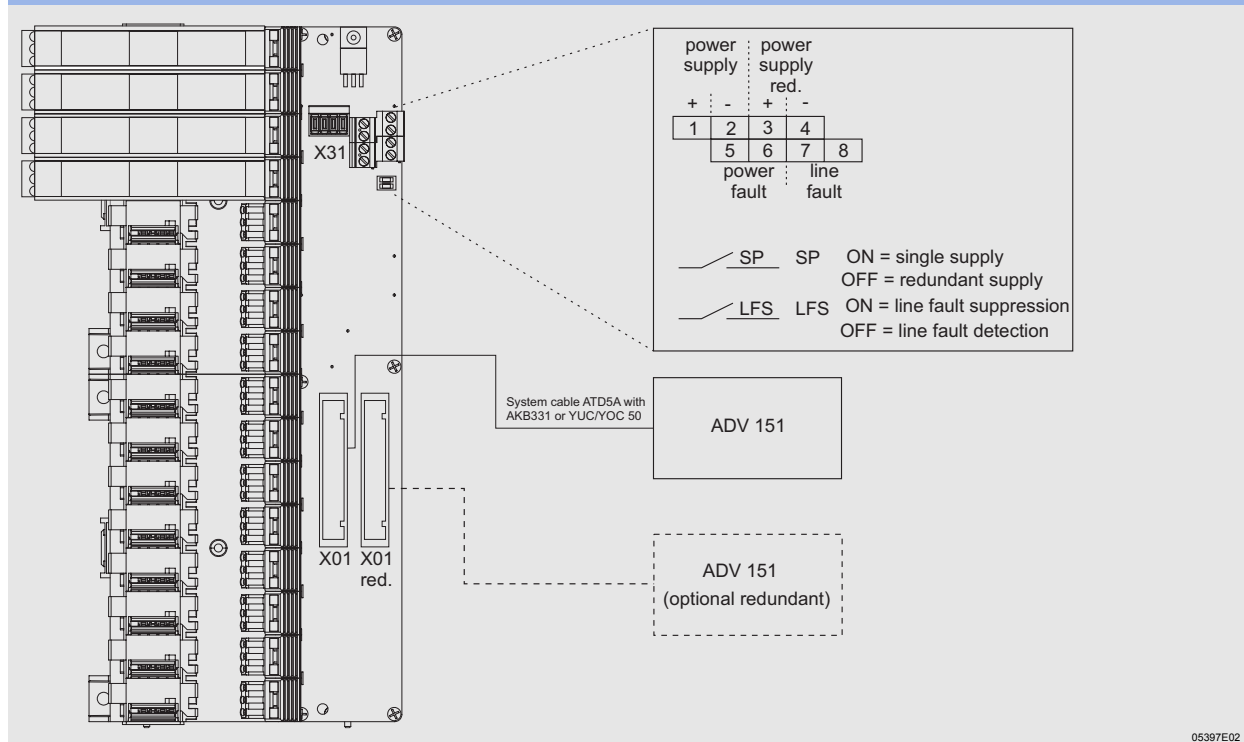
- For Yokogawa / Centum VP / ADV 151 / 161
- Signal types: up to 2 x 32 x DI
- pac-Carrier for 2 x 16 modules, i.e. up to 64 signals (at ADV 161),
pac-Carrier for 16 modules, i.e. up to 32 signals (at ADV 151)
- ISpac isolators DI 9170/20-14-11 and 9170/20-11-11 can be used
- Customized system cables type AKB331, AKB337 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



05179E00

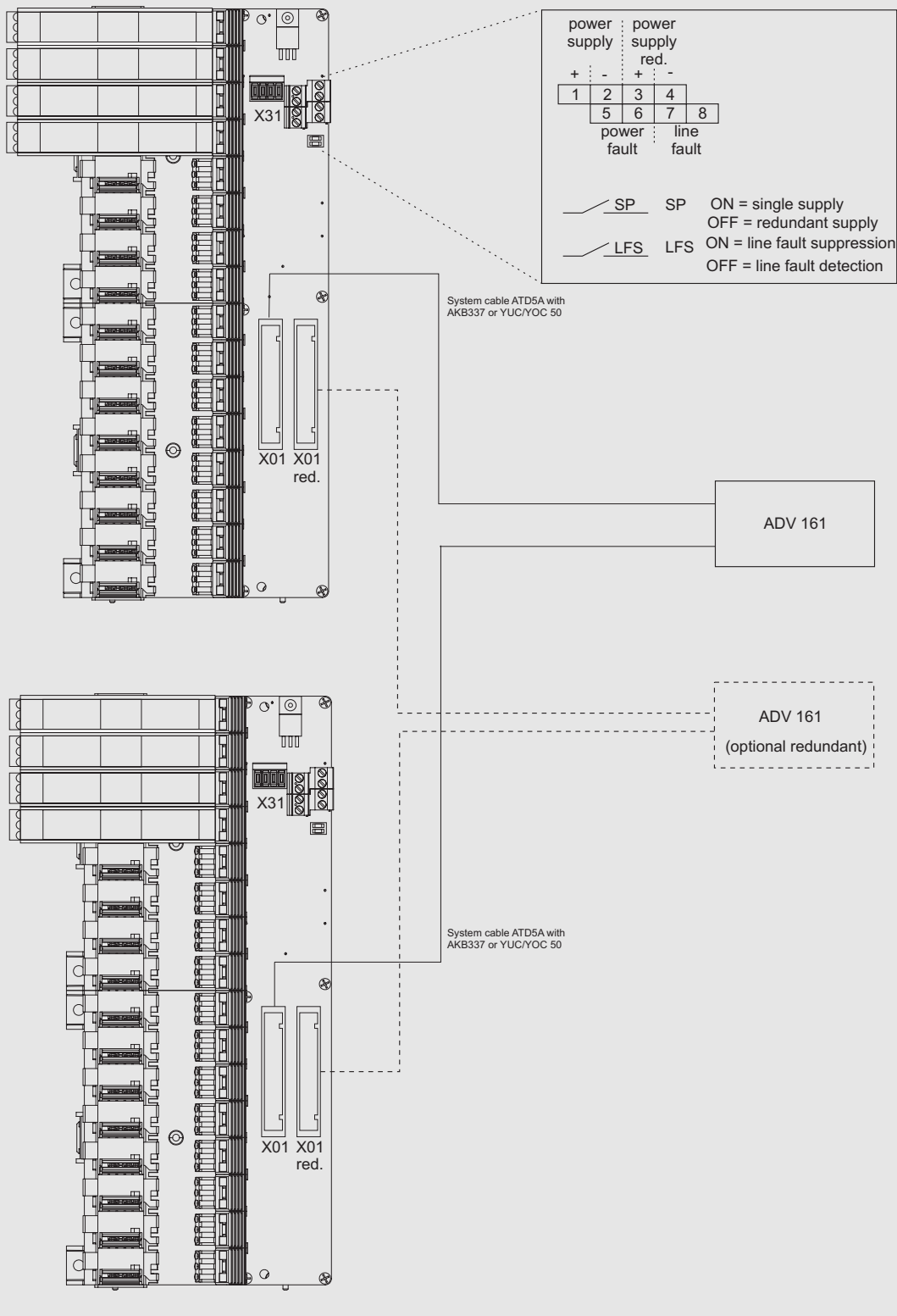
Comfortable and simple integration of the I.S. isolators ISpac into Yokogawa / Centum VP automation systems via system specific connection boards and system cables.

System Overview



05397E02

System Overview



STAHL

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	ADV 151	16	no	yes	9195/16A-YO1-06A2
Yokogawa	Centum VP	ADV 161	2 x 16	no	yes	9195/16A-YO1-06A2

Technical Data

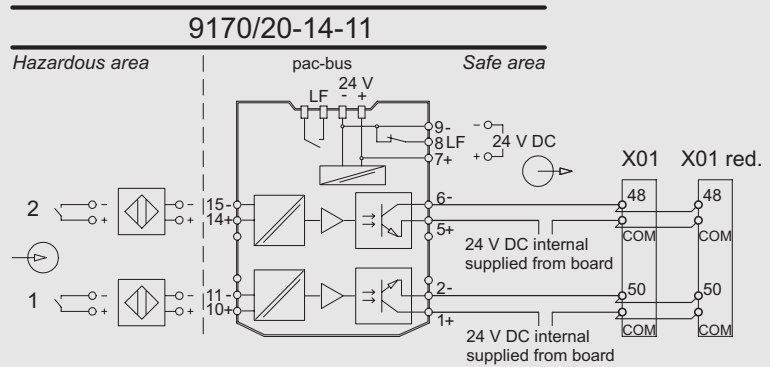
Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	19 V ... 31.2 V
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; 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 (specification see "signal loops")
Number of channels	64 (at ADV 161) 32 (at ADV 151)
Connection automation system (X01, X01 red.)	
Connection	2 x plug 50 pole for KS1 or YUC 50 (Phoenix Contact) cable
Number of channels	64 (at ADV 161) 32 (at ADV 151)
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.

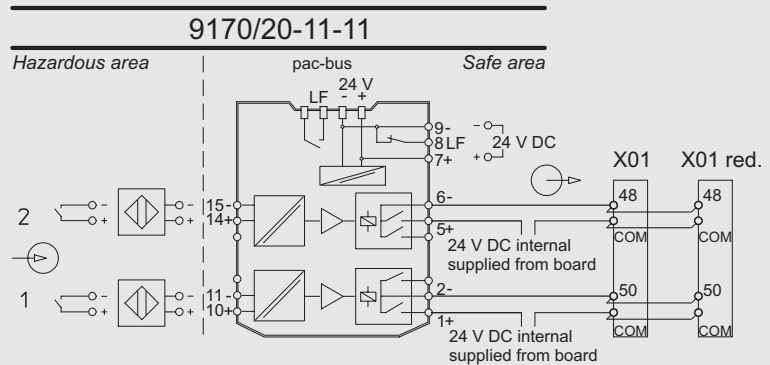
Switching repeater (DI)

for NAMUR proximity switches and contacts
- electronic output



Switching repeater (DI)

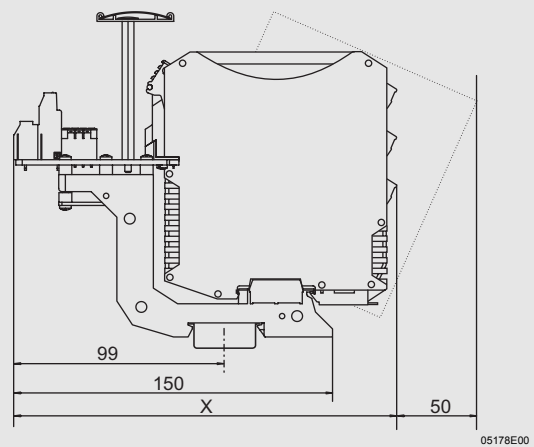
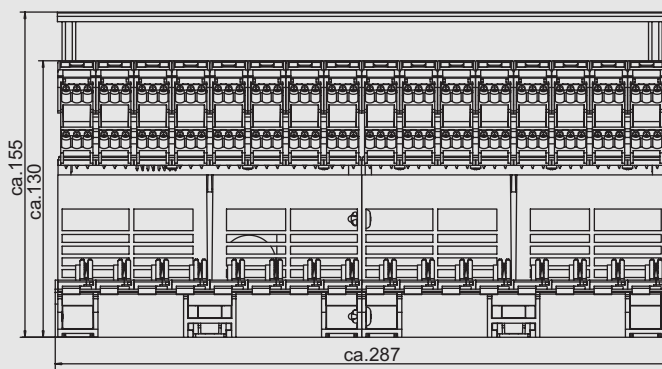
for NAMUR proximity switches and contacts
- relay output



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 (ATD5A + AKB331) or (AKB337)		pin X01 red. (ATD5A + AKB331) or (AKB337)	
10	+	1	1	1	-	1)	-	1)
11	-				+	50	+	50
14	+				-	1)	-	1)
15	-				+	48	+	48
10	+	3	2	3	-	1)	-	1)
11	-				+	46	+	46
14	+				-	1)	-	1)
15	-				+	44	+	44
10	+	5	3	5	-	1)	-	1)
11	-				+	42	+	42
14	+				-	1)	-	1)
15	-				+	40	+	40
10	+	7	4	7	-	1)	-	1)
11	-				+	38	+	38
14	+				-	1)	-	1)
15	-				+	36	+	36
10	+	9	5	9	-	1)	-	1)
11	-				+	34	+	34
14	+				-	1)	-	1)
15	-				+	32	+	32
10	+	11	6	11	-	1)	-	1)
11	-				+	30	+	30
14	+				-	1)	-	1)
15	-				+	28	+	28
10	+	13	7	13	-	1)	-	1)
11	-				+	26	+	26
14	+				-	1)	-	1)
15	-				+	24	+	24
10	+	15	8	15	-	1)	-	1)
11	-				+	22	+	22
14	+				-	1)	-	1)
15	-				+	20	+	20
10	+	17	9	17	-	1)	-	1)
11	-				+	49	+	49
14	+				-	1)	-	1)
15	-				+	47	+	47
10	+	19	10	19	-	1)	-	1)
11	-				+	45	+	45
14	+				-	1)	-	1)
15	-				+	43	+	43
10	+	21	11	21	-	1)	-	1)
11	-				+	41	+	41
14	+				-	1)	-	1)
15	-				+	39	+	39
10	+	23	12	23	-	1)	-	1)
11	-				+	37	+	37
14	+				-	1)	-	1)
15	-				+	35	+	35
10	+	25	13	25	-	1)	-	1)
11	-				+	33	+	33
14	+				-	1)	-	1)
15	-				+	31	+	31
10	+	27	14	27	-	1)	-	1)
11	-				+	29	+	29
14	+				-	1)	-	1)
15	-				+	27	+	27
10	+	29	15	29	-	1)	-	1)
11	-				+	25	+	25
14	+				-	1)	-	1)
15	-				+	23	+	23
10	+	31	16	31	-	1)	-	1)
11	-				+	21	+	21
14	+				-	1)	-	1)
15	-				+	19	+	19

05328E02

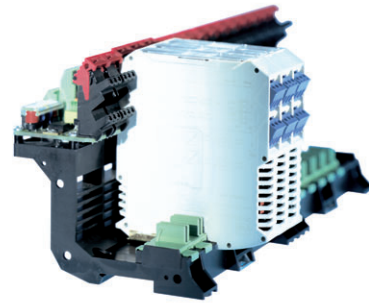
1) Common; Cable AKB331/AKB337 pins 11-18

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice.
The illustrations cannot be considered binding.

pac-Carrier

Type 9195/16A-YO1-07A2

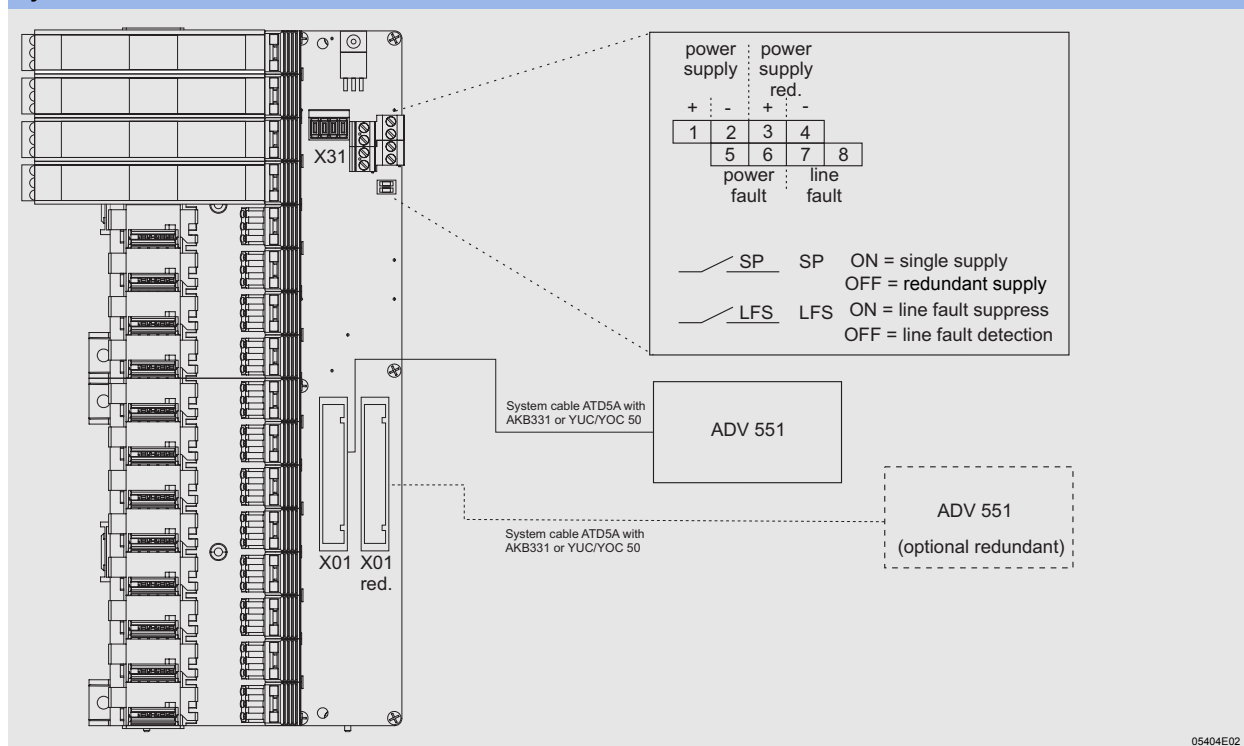
- For Yokogawa / Centum VP / ADV 551 / 561
- Signal types: up to 2 x 32 x DO
- pac-Carrier for 2 x 16 modules, i.e. up to 64 signals (at ADV 561)
pac-Carrier for 16 modules, i.e. up to 32 signals (at ADV 551)
- ISpac isolators DO 9175/20-1.-11, 9176/20-1.-00 and 9172/21-11-00 can be used
- Customized system cables type AKB331, AKB337 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



05179E00

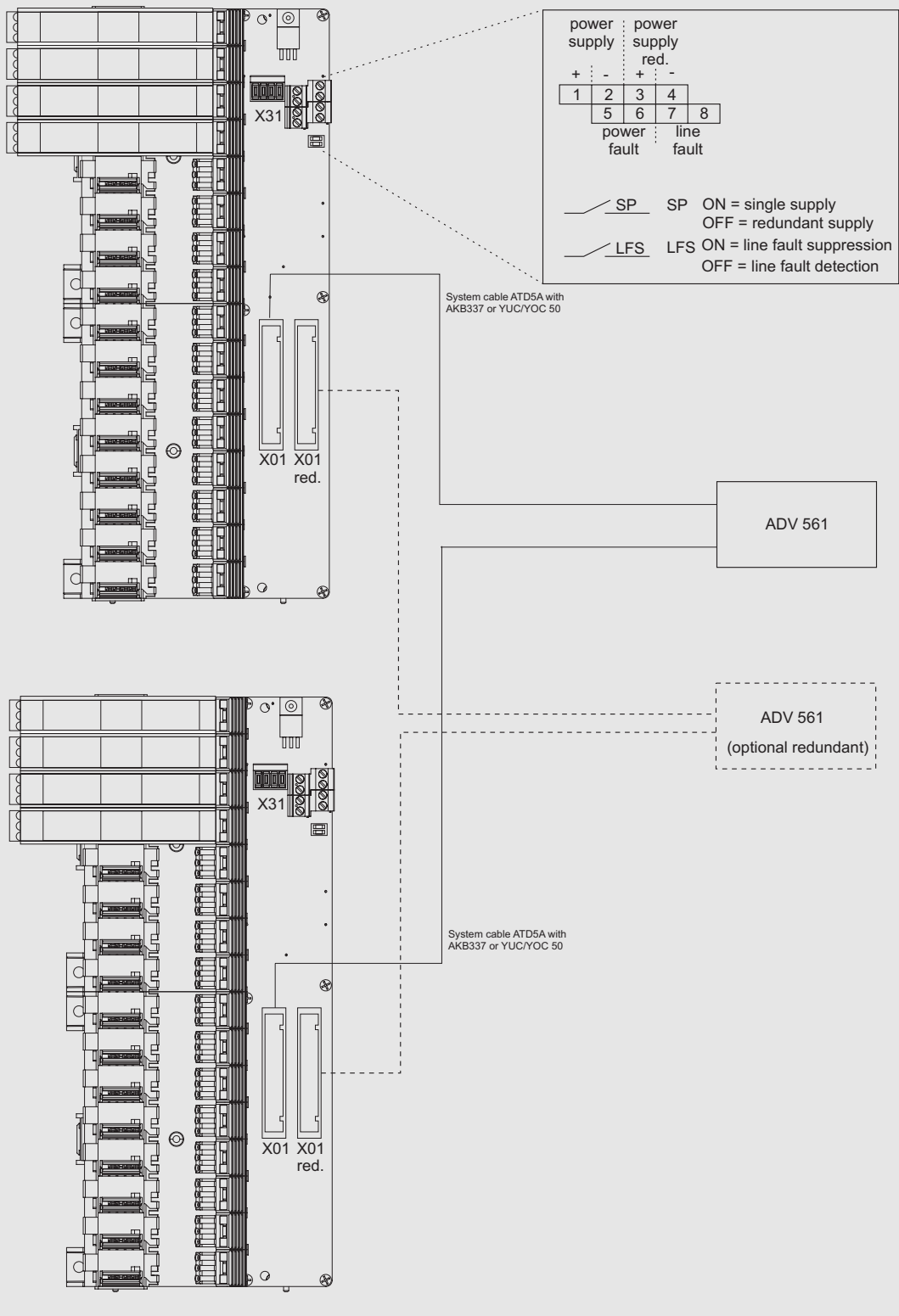
Comfortable and simple integration of the I.S. isolators ISpac into Yokogawa / Centum VP automation systems via system specific connection boards and system cables.

System Overview



05404E02

System Overview



05404E02

Selection Table

Control system			pac-Carrier			
PLS manufacturer	PLS	I/O-cards type	Slots	HART-MUX	Redundancy	Type
Yokogawa	Centum VP	ADV 551	16	no	yes	9195/16A-YO1-07A2
Yokogawa	Centum VP	ADV 561	2 x 16	no	yes	9195/16A-YO1-07A2

Technical Data

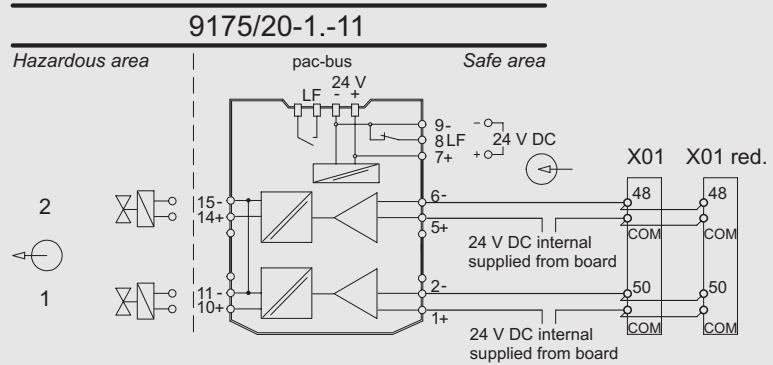
Certificates	BVS 03 ATEX E 213 X
Explosion protection	Ex II 3 G Ex nA nC II T4
Installation	In Zone 2, Div. 2 and in the safe area
Power supply (X31)	
Nominal voltage	24 V DC
Voltage range	19 V ... 31.2 V
Redundant supply	yes, decoupled with diodes
Indication	2 LED green "PWR1"; "PWR2"
Fuse	2 x TR5; 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 (specification see "signal loops")
Number of channels	64 (at ADV 561) 32 (at ADV 551)
Connection automation system (X01, X01 red.)	
Connection	2 x plug 50 pole for KS1 or YUC 50 cable
Number of channels	64 (at ADV 561) 32 (at ADV 551)
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.

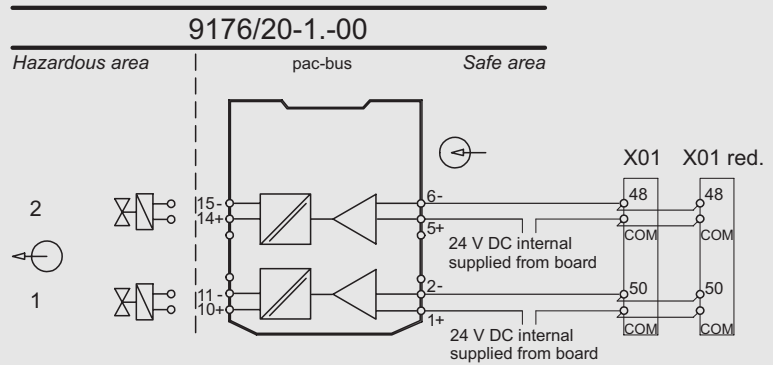
Digital output (DO)

for solenoid valves and indicators



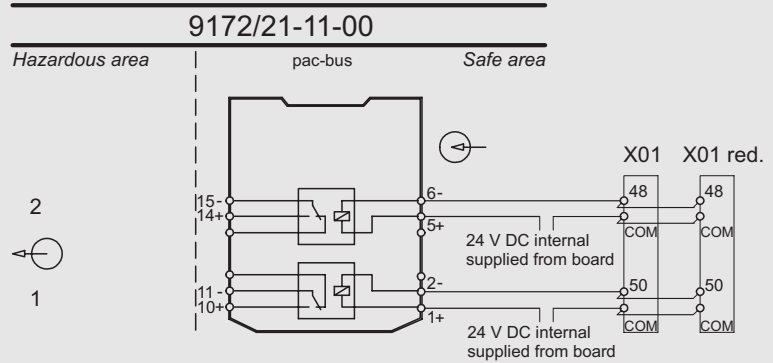
Digital output (DO)

for solenoid valves and indicators



Relay module (DO)

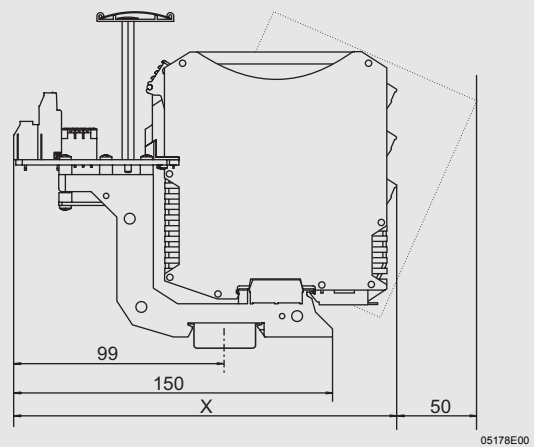
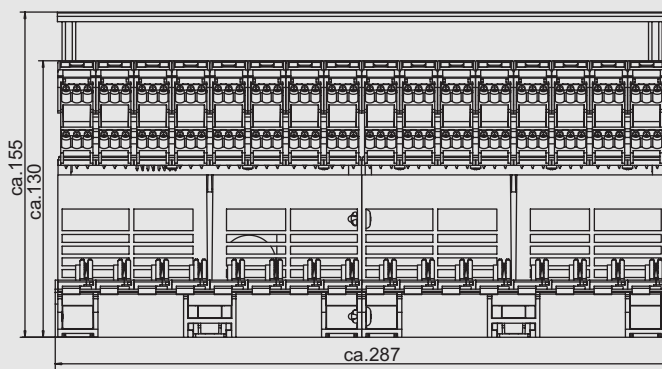
for digital signals and control circuits



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	output no.	pin X01 (ATD5A + AKB331) or (AKB337)		pin X01 red. (ATD5A + AKB331) or (AKB337)	
10	+	1	1	1	-	1)	-	1)
11	-				+	50	+	50
14	+				-	1)	-	1)
15	-				+	48	+	48
10	+	3	2	3	-	1)	-	1)
11	-				+	46	+	46
14	+				-	1)	-	1)
15	-				+	44	+	44
10	+	5	3	5	-	1)	-	1)
11	-				+	42	+	42
14	+				-	1)	-	1)
15	-				+	40	+	40
10	+	7	4	7	-	1)	-	1)
11	-				+	38	+	38
14	+				-	1)	-	1)
15	-				+	36	+	36
10	+	9	5	9	-	1)	-	1)
11	-				+	34	+	34
14	+				-	1)	-	1)
15	-				+	32	+	32
10	+	11	6	11	-	1)	-	1)
11	-				+	30	+	30
14	+				-	1)	-	1)
15	-				+	28	+	28
10	+	13	7	13	-	1)	-	1)
11	-				+	26	+	26
14	+				-	1)	-	1)
15	-				+	24	+	24
10	+	15	8	15	-	1)	-	1)
11	-				+	22	+	22
14	+				-	1)	-	1)
15	-				+	20	+	20
10	+	17	9	17	-	1)	-	1)
11	-				+	49	+	49
14	+				-	1)	-	1)
15	-				+	47	+	47
10	+	19	10	19	-	1)	-	1)
11	-				+	45	+	45
14	+				-	1)	-	1)
15	-				+	43	+	43
10	+	21	11	21	-	1)	-	1)
11	-				+	41	+	41
14	+				-	1)	-	1)
15	-				+	39	+	39
10	+	23	12	23	-	1)	-	1)
11	-				+	37	+	37
14	+				-	1)	-	1)
15	-				+	35	+	35
10	+	25	13	25	-	1)	-	1)
11	-				+	33	+	33
14	+				-	1)	-	1)
15	-				+	31	+	31
10	+	27	14	27	-	1)	-	1)
11	-				+	29	+	29
14	+				-	1)	-	1)
15	-				+	27	+	27
10	+	29	15	29	-	1)	-	1)
11	-				+	25	+	25
14	+				-	1)	-	1)
15	-				+	23	+	23
10	+	31	16	31	-	1)	-	1)
11	-				+	21	+	21
14	+				-	1)	-	1)
15	-				+	19	+	19

05332E02

1) Common; Cable AKB331/AKB337 pins 11-18

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice.
The illustrations cannot be considered binding.

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