



13055E00

- > For FOUNDATION™ fieldbus H1 segments, simplex or redundant
- > Galvanic isolation between fieldbus segment and power supply unit
- > High output power of up to 28 V and 1 A
- > Integrated advanced diagnosis for trunk, current/voltage, signal level, noise, jitter and asymmetry
- > Version with adjustable warning and alarm values and 3-stage LED display (9412/0.-320)
- > Serial interface for downloading the diagnosis data
- > Integrated, switchable terminator



The Fieldbus Power Supply 9412 are used for simple or redundant supply and signal conditioning of FOUNDATION™ fieldbus H1 segments.

With the high output power of up to 28 V and 500 mA it is possible to use a large number of devices on even long distances.

For special applications with very high power requirement two parallel Fieldbus Power Supplies in Boost Mode can supply up to 1A current.

During operation the fieldbus segments are continuously monitored for overload and short circuit. All FPS have integrated online diagnostics for the fieldbus physical layer parameters. These can be read via the serial interface connection on the front and any PC. 9412/0.-320 monitors the physical layer values with adjustable alarming values, signalling relay contact and 3-level LED.

The Fieldbus Power Supplies can be installed as single units on the DIN-Rail or in system specific bus-Carriers Series 9419.

	ATEX / IECEx						Zone	NEC 505 Class I						Division	NEC 500						
	0	1	2	20	21	22		0	1	2	20	21	22		1	2	1	2	1	2	
Installation in			x			x	Installation in			x			x	Installation in		x		x			x

Fieldbus Power Supply

Series 9412



Selection Table

Version	Segment supply		Description	Order number
	Output voltage	Output current		
Fieldbus power supply	≥ 28 V DC	500 mA	fieldbus power supply and diagnostics	9412/00-310-11s
			fieldbus power supply, diagnostics and adjustable warning level	9412/00-320-11s
	≥ 15 V DC	500 mA	fieldbus power supply and diagnostics	9412/01-310-11s
			fieldbus power supply, diagnostics and adjustable warning level	9412/01-320-11s
	≥ 21.4 V DC	500 mA	fieldbus power supply and diagnostics	9412/02-310-11s
			fieldbus power supply, diagnostics and adjustable warning level	9412/02-320-11s

Explosion Protection

Global (IECEX)

Gas	IECEX BVS 09.0043X Ex nA nC IIC T4 Gc
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Europe (ATEX)

Gas	BVS 09 ATEX E 099 X Ⓜ II 3 G Ex nA nC IIC T4 Gc
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Certifications and certificates

Certificates	IECEX, ATEX, Canada (cFM), Kazakhstan (TR), Russia (TR), Serbia (IZP), USA (FM), Belarus (TR)
Ship approval	DNV

Further parameters

Installation	Zone 2, safe area
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Technical Data

Auxiliary power

Nominal voltage	24 V DC									
Voltage range	18 ... 32 V									
Electrical Data		9412/00			9412/01			9412/02		
	Supply voltage [V]	18	24	32	18	24	32	18	24	32
	Current consumption [mA]	970	730	550	560	425	325	760	570	435
	Power dissipation [W]	3.21	3.27	3.35	2.33	2.45	2.65	2.73	2.73	2.97
	all data at max. output current / output voltage									
Operation indication	LED green "PWR"									
Polarity reversal protection	yes									

Galvanic separation

Fieldbus to power supply	250 V AC eff.
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Fieldbus

Specification	IEC 61158-2, FOUNDATION™ fieldbus H1 FF-831
EOL resistor	integrated, switchable

Segment supply

Electrical Data		9412/00			9412/01			9412/02		
	Output voltage [V DC]	≥ 28			≥ 15			≥ 21.4		
	ic voltage limit U_o / V_{oc} [V]	30.4			17.3			23.7		
	(ic acc. to EN 60079-11:2007)									
Output current	10 ... 500 mA									
Simplex mode	10 ... 500 mA									
Redundant mode	10 ... 500 mA (= 2 x 250 mA in redundant operation 2 x 9412)									
Boost mode	10 mA ... 1 A (= 2 x 500 mA in parallel operation 2 x 9412)									
Overload	500 ... 540 mA									
Short-circuit current	≤ 0 mA (output switched off)									
Residual ripple	≤ Corresponds to chapter 22.6.2 of IEC 61158-2									
Indication	LED yellow "SEG" (flashes in case of overload and short-circuit)									

Technical Data

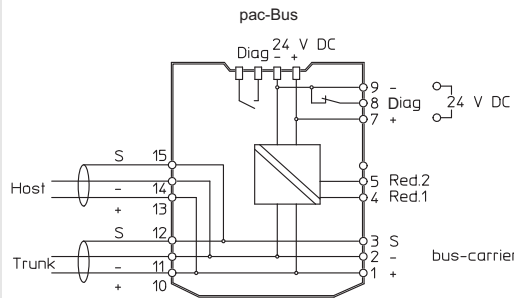
Diagnostics

Supply error	< 18 V
Fault detection	9412/0.-310-11s: overload and short circuit 9412/0.-320-11s: overload, short circuit and Physical Layer values: trunk voltage/current, signal level, noise, jitter, unbalance
Segment error	Overload: > 500 mA (output active) Short circuit: > 540 mA (output switched off)
Error message	relay contact (30 V DC / 100 mA)
Fault indication	9412/0.-310-11s: LED red "ERR" flashes 9412/0.-320-11s: LED green "OK" for segment in set quality range LED yellow "WARN" for segment below set quality range LED rot "BAD" for segment outside specification
Interface	serial, front side (RS232)
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326 (IEC/EN 61000-4-1...6 and 11; EN 55022 class A); NAMUR NE21

Ambient conditions

Ambient temperature	-20 ... +70 °C / -4 ... +158 °F (see manual for installation notes)
Storage temperature	-40 ... +80 °C / -40 ... +176 °F
Relative humidity (no condensation)	< 95 %

Connection diagram



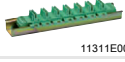


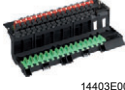

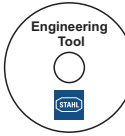
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Mechanical data

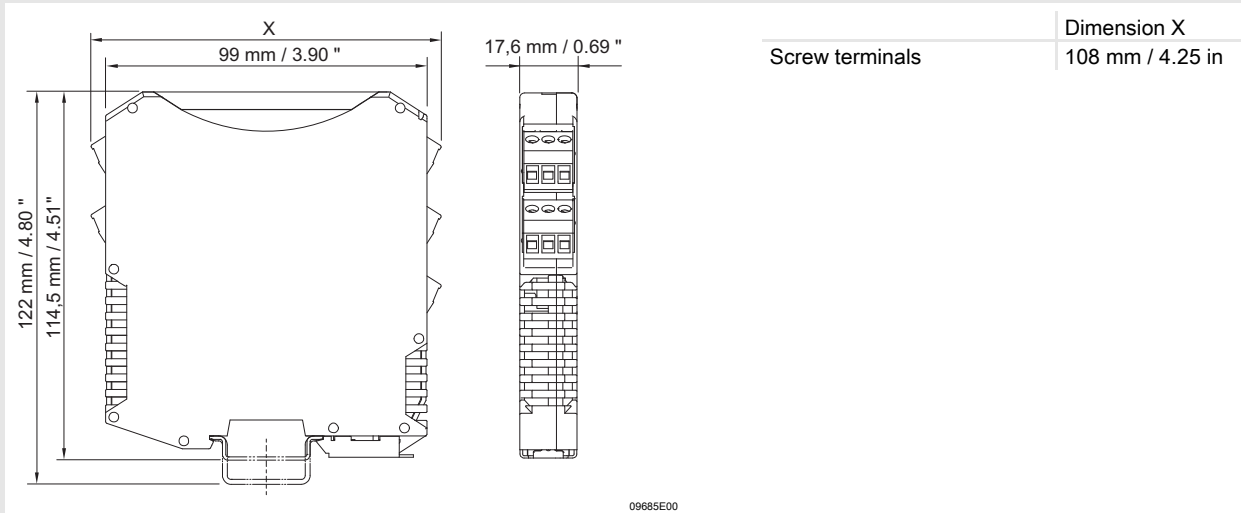
Screw terminals

Connection single-wire	
- rigid	0.2 ... 2.5 mm ² / 22 ... 12 AWG
- flexible	0.2 ... 2.5 mm ² / 22 ... 12 AWG
- flexible, terminal sleeves (without / with plastic sleeving)	0.25 ... 2.5 mm ² / 22 ... 12 AWG
Connection two wires	
- rigid	0.2 ... 1 mm ² / 22 ... 16 AWG
- flexible	0.2 ... 1.5 mm ² / 22 ... 16 AWG
- flexible with terminal sleeves	0.25 ... 1 mm ² / 22 ... 16 AWG
Weight	approx. 0.135 kg / 0.298 lbs
Assembly type	on DIN rail acc. to EN 50022 (NS35/15; NS35/7.5) or on bus-Carrier
Installation position	Preferably vertical (see manual)
Enclosure Type of Protection	IP30
Terminal Type of Protection	IP20
Enclosure material	PA 6.6
Fire protection class (UL 94)	V0

Accessories and Spare Parts

Designation	Figure	Description	Order number
pac-Bus	 11311E00	Wiring for power supply and common error messaging for up to 8 fieldbus power supplies	9194 / 31 - 17
bus-Carrier, simplex	 14402E00	bus-Carrier for 8 segments, simplex	9419 / 08F - XX1 - 01C1
bus-Carrier, redundant	 14402E00	bus-Carrier for 4 segments, redundant	9419 / 04R - XX1 - 02C1
	 14403E00	bus-Carrier for 8 segments, redundant	9419 / 08R - XX1 - 02C1
Diagnosis communication module 9415	 14406E00	transmission of diagnostics data for up to 8 segments via FF H1	9415 / 00 - 310 - 42
Fieldbus Wizard Engineering Tool	 07376E00	Engineering tool for design of fieldbus foundation or Profibus PA fieldbus segments Download under www.fieldbus-solutions.info	Download under www.fieldbus-solutions.info

Dimensional Drawings (All Dimensions in mm / inches) - Subject to Alterations



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