



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



FOUNDATION

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.

Fieldbus Power Supply

Series 9412



		ATEX / IECEx / GOST							NEC 505			NEC 506					NEC 500						
									Class I								Class I		Class II		Class III		
Zone		0	1	2	20	21	22	Zone		0	1	2	20	21	22	Division		1	2	1	2	1	2
Installation in				x ^{*)}			x ^{*)}	Installation in				x ^{*)}			x ^{*)}	Installation in		x ^{*)}		x ^{*)}			x ^{*)}

^{*)} also in safe area

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		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 nAc nCc II T4

Europe (ATEX)

Gas BVS 09 ATEX E 099 X
Ⓜ II 3G Ex nAc nCc II T4

Certificates and approvals

Certificates IECEx, ATEX, Canada (cFM), Kazakhstan (GOST-K), Russia (GOST-R), Serbia (IZP), USA (FM), Belarus (GOST-B)

Further parameters

Installation Zone 2, safe area

Technical Data

Power supply

Rated 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

Indication LED green "PWR"
Reverse polarity protection yes

Galvanic isolation

Fieldbus to power supply 250 V AC eff.

Fieldbus

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

Technical Data

Segment supply

Electrical Data	9412/00	9412/01	9412/02
Output voltage [V DC]	≥ 28	≥ 15	≥ 21.4
ic voltage limit U_o / U_{oc} [V] (ic acc. to EN 60079-11:2007)	30.4	17.3	23.7
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)		

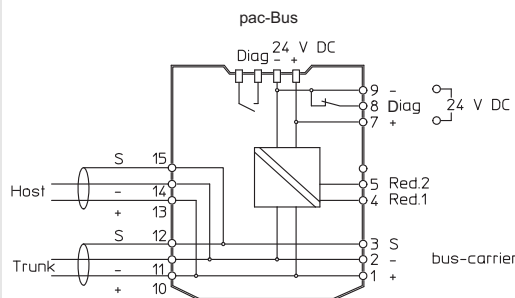
Diagnostics

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

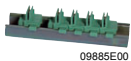




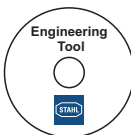


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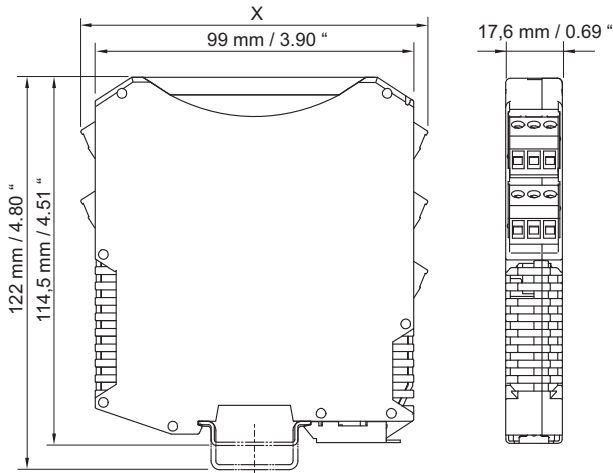
Mechanical data

	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	Illustration	Description	Order number
pac-Bus	 09885E00	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 modul 9415	 14406E00	Transmission of diagnosis data for up to 8 segments via FF H1	9415 / 00 - 310 - 42
Fieldbus Wizard Engineering Tool	 07376E00	Engineering tool for segment design of fieldbus foundation or Profibus PA fieldbus installations Download under www.fieldbus-solutions.info	Download under www.fieldbus-solutions.info

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

	Screw terminals	Dimension X 108 mm / 4.25 in
	09885E00	

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