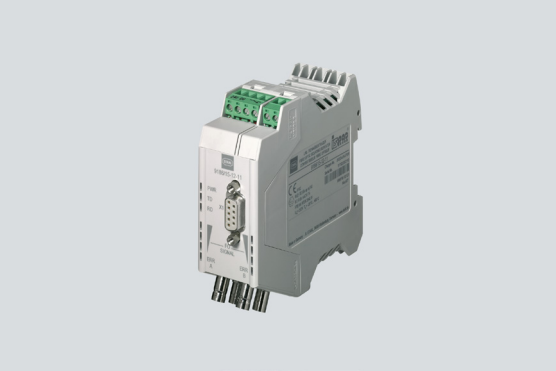
Network and Wireless Solutions
FO fieldbus
ISpac
9186/15-12-11 Art. No. 160624



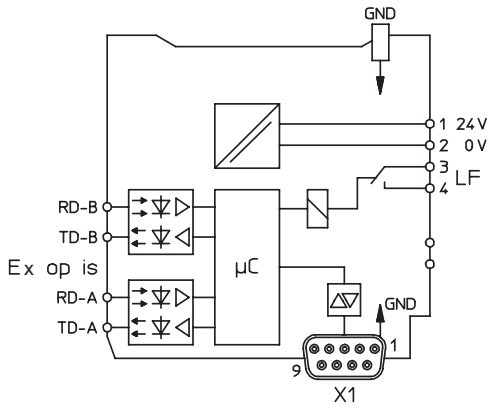
- For redundant FO network structures (Profibus DP, Modbus RTU) in hazardous areas of Zone 1
- "Ex op is" interface makes for easy installation and maintenance
- With diagnostics function for early error detection and signalling

MY R. STAHL **9186B**

The 9186 series FO fieldbus isolating repeater transmits PROFIBUS DP and Modbus RTU signals over distances of up to 1.2 mi / 2 km as part of redundant fiber optic network structures. Standard plug connectors can be connected to the inherently safe optical interfaces “Ex op is”. The diagnostic functions detect critical signal conditions early and report them to the control room.

Technical Data

Explosion Protection	
Application range (zones)	2
Ex interface zone	2, 22
IECEx gas certificate	IECEx BVS 13.0107 X
IECEx gas explosion protection	Ex nA nC [op is T6 Ga] IIC T4 Gc
IECEx dust certificate	IECEx BVS 13.0107 X
IECEx dust explosion protection	[Ex op is Da] IIIC
ATEX gas certificate	BVS 07 ATEX 068 X
ATEX gas explosion protection	II 3 (1) G Ex nA nC [op is T6 Ga] IIC T4 Gc
ATEX dust certificate	BVS 07 ATEX 068 X
ATEX dust explosion protection	II (1) D [Ex op is Da] IIIC
cULus certificate	E81680
Marking cULus	Class I, Zone 2, AEx/Ex nC Group IIC
Certificates	ATEX (BVS), Brazil (ULB), Canada (UL), IECEx (BVS), USA (UL)
Ship approval	CCS, EU RO MR (DNV)
Installation	Cl. I, Div. 2; Cl. I, Zone 2; Zone 2 or safe area
Electrical Data	
LFD relay	Yes
Protocols	HART over RS485 Modbus RTU PROFIBUS DP ServiceBus R.STAHL (IS1+)
Data rate	9.6 kbit/s ... 1.5 Mbit/s
Electric interface version	RS 485
Electric interface connection	Sub-D socket X1, 9-pole
Field side of interfaces	Fibre optics Ex opis
Protocols optical interface	Protocol-transparent with RS-485 interface

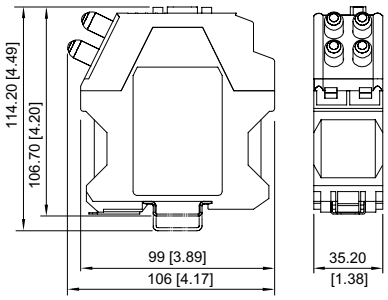
Electrical Data	
Redundancy optical interface	Automatic changeover in the event of a line fault
Network structure	Line Ring Point-to-point
Optical interface connection	ST®, BFOC/2.5 socket
Optical interface transmission distance	≤ 2000 m
Data transmission display	green TD and RD
Error control	Power supply failure: Fault-contact is open Transmission level is good: LED green and yellow "FO signal", fault-contact is closed. Transmission level reduced (-1,5 dBm): LED yellow "FO ERR", fault-contact is open. Fiber breakage or transmission level is too low (-3 dBm): LED red "FO ERR", fault-contact is open.
FO wavelength	850 nm
Compatibility	Compatible with series 9186
Connection diagram 9186/15	

PIN	RS 485
8	A-
3	B+
6	U+
5	GND

Auxiliary Power	
Auxiliary power	24 V DC
Nominal voltage V_{nom}	24 V DC
Auxiliary power voltage range	18 ... 31.2 V
Voltage range residual ripple	≤ 3,6 V_{SS}
Nominal current	130 mA
Power consumption	3 W
Polarity reversal protection	Yes
Operation indication	Green "PWR" LED
Galvanic Isolation	
Auxiliary power to RS-485	1.5 kV AC
Output	
Fault message contact switching capacity	max. 60 V DC;42 V AC;0,46 A
Display error	Red "ERR" LED
Ambient Conditions	
Ambient temperature °C	-20 °C ... +60 °C
Ambient temperature °F	-4°F ... +140°F
Storage temperature °C	-40°C ... +85°C
Storage temperature °F	-40°F ... +185°F
Max. relative humidity	95%
Use at the height of	< 2000 m

Ambient Conditions	
Note	Class II,III, Div. 2 and NEC® 506 Zone 22 applications are possible; contact factory
Mechanical Data	
Degree of protection (IP)	IP30
Degree of protection (IP) terminals	IP20
Fire resistance (UL 94)	V0
Enclosure material	Polyamide
Min. rigid conductor cross section	0.2 mm²
Max. rigid conductor cross section	2.5 mm²
Min. flexible conductor cross section	0.2 mm²
Max. flexible conductor cross section	2.5 mm²
Connection cross-section	0.2 to 2.5 mm² flexible 0.2 to 2.5 mm² rigid 0.25 to 2.5 mm² flexible with core end sleeve
Connection cross-section AWG	24 ... 14
Width	35.2 mm
Width, inches	1.38 in
Height	114.2 mm
Height in inches	4.49 in
Length	106 mm
Length in inches	4.17 in
Weight	244 g
Mounting / Installation	
Grid dimension	35.2 mm
Mounting orientation	Vertical Horizontal
Connection type	Screw terminal

Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



Type 9186/15

Accessories

Sub-D plug, RS-485		**Art. No.**
	9-pin for connecting fieldbus or ServiceBus to CPU & power module Type 9440/15, 9185 field-busisolatingrepeater and 9786/15-12 media converter. The end-of-line resistor is installed and switchable. For non-intrinsically safe RS-485. Ambient temperature: -40 °C to +75 °C	105715