



Profibus PA 1x2x18 AWG



Standards : EN 50170-8-2, IEC 61784; IEC61158



Ambient installation T°
C range
0 + 50 °C



Operating temp.
-20 + 60 °C



Storage temperature
range
-20 + 70 °C



Flame retardant
IEC 60332-1



Smoke density

Application

PROFIBUS PA 1X2X18 AWG (Process Automation) is used to monitor measuring equipment via a process control system in process automation applications. This variant is designed for use in explosion/hazardous areas. The Physical Layer (i.e. the cable) conforms to IEC 61158-2, which allows power to be delivered over the bus to field instruments, while limiting current flows so that explosive conditions are not created, even if a malfunction occurs. The number of devices attached to a PA segment is limited by this feature. PA has a data transmission rate of 31.25 kbit/s. However, PA uses the same protocol as DP, and can be linked to a DP network using a coupler device. The much faster DP acts as a backbone network for transmitting process signals to the controller. This means that DP and PA can work tightly together, especially in hybrid applications where process and factory automation networks operate side by side.

PROFIBUS PA runs at fixed speed of 31.25 kbit/s via blue sheathed two core screened cable. The communication may be initiated to minimise the risk of explosion or for the systems that intrinsically need safe equipment. The message formats in PROFIBUS PA are identical to PROFIBUS DP.

Temperature limit conditions:

- Ambient installation temperature, range: from 0°C to +50°C
- Operating temperature, range: from -40 °C to +75°C

Mechanical properties:

Minimum internal bending radius:
(D = cable outer diameter)

- fixed: 7.5 × outer diameter
- occasional flexing: 10 × outer diameter
- during installation (under load): 8 x outer diameter

- packaging: 500m on wooden reel

Flame resistance:

- the cable is self-extinguishing according to IEC 60332-1
- halogen-free according to IEC 60754-1/2; IEC 60332-3-24
- non-corrosive combustion gases according to IEC 60754-1/2
- minimal smoke emission according to IEC 61034-2

Cable construction

Conductor category class:	Solid copper, (1 mm, 18 AWG)
Conductor material	copper f 1 mm
AWG size	18/1
Insulation material	Skin-Foam-Skin PE
Number of Cores	2
Core identification	Green, Red
Inner Bedding	Low Smoke Halogen Free (LSHF)
1.Screen	Polyester tape + Aluminum foil (> 100 % Coverage)
2.Screen Braid	Tinned Copper Braid (> 85%
Coverage)	
Nominal diameter through insulation	2.5 mm
Sheath material	Low Smoke Halogen Free (LSHF)
Outer diameter:	7.6-7.8 mm
Sheath color:	Violet (RAL 4001);Blue (RAL
5015);	Black (RAL 9005)

Electrical characteristics at 20°C ± 5°C

Characteristic impedance	31.25 kHz	100 Ω ± 20 %
Loop resistance at 20°C		(Ωxkm) ≤ 43
Insulation resistance:		≥ 5 GΩxkm
Test voltage (DC,1min)	core/core:	2500 V AC (1 min)
	core/screen:	2500 V AC (1 min)
Operating Voltage		300 V (not for power
purposes)		
Mutual Capacitance	core/core:	60 nF/km (800 Hz)
	core/screen:	80 nF/km (800 Hz)
Inductance	31.25 kHz	Mh/km 0.70
Attenuation	7.8 kHz – 39 kHz:	≤ 3 dB/km
	100 kHz:	≤ 3.5 dB/km
	1 MHz:	≤ 12 dB/km
Velocity of Propagation		0.78 c
Transfer impedance	100 kHz:	≤ 20 mΩ/m

1 MHz:	≤ 25 mΩ/m
10 MHz:	≤ 125 mΩ/m
30 MHz:	≤ 250 mΩ/m

Technical data

Cable type	Number of cores (18AWG)	insulation diameter mm	Outer diameter mm	weight kg/km
Profibus PA 1x2x18 AWG	2	2.5	7.6-7.8	93-95

The information contained within this datasheet is for guidance only and is subject to change without notice or liability. All the information is provided in good faith and is believed to be correct at the time of publication. When selecting cable accessories, please note that actual cable dimensions may vary due to manufacturing tolerances.