

# SUP303

# smar

FEB / 16

**SUP303**



USER'S MANUAL

## PROFIBUS-DP TRANSIENT SUPPRESSOR AND ANTI-SURGE



SUP303ME

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# AVOIDING ELECTROSTATIC DISCHARGES



## ATTENTION

Electrostatic discharges may damage semiconductor electronic components in printed circuit boards. They usually occur when touching components or connector pins from modules and racks, without wearing the appropriate equipment to prevent discharges. It is recommended to take the following precautions:

- ✓ Before handling modules and racks, remove the electrostatic charge from your body by wearing a proper wristband or touching grounded devices;
- ✓ Avoid touching electronic components or connector pins from racks and modules.



# SUP303 - PROFIBUS-DP TRANSIENT SUPPRESSOR AND ANTI-SURGE

## Description

The SUP303 has advanced technology for protection in three stages. Its advanced components work in peaks of high voltage and short duration, high current, high voltage, low impedance with fast response and effective protection against ESD and EMI. The SUP303 circuits were developed to provide effective and coordinate protection in reaction to a transitory at the Profibus-DP port. The primary stage protects from the exposition to an excess of transitory voltage, at a lower level. When the current transient exceeds the trigger limit, the second stage responds in microseconds, thus limiting the current. The third stage keeps the voltage within the Profibus-DP drive limits.



Figure 1 – SUP303

## Main features

- The SUP303 is a protective device against transients and surges in Profibus-DP networks.
- Easy to install on DIN rail, it can be connected on every network segment or node. It guarantees the integrity of Profibus signals against lightning, transients or voltage peaks;
- Whenever the effective distance is longer than 50m on the horizontal or 10m on the vertical between two grounded points, the use of SUP303 is recommended at both points;
- In networks with high susceptibility to noises the SUP303 is recommended;
- Works at 9.6 Kbit/s to 12 Mbit/s;
- Increases the Profibus network operational safety;
- Increases Profibus network availability;
- Can be used with Modbus 485.

## Application

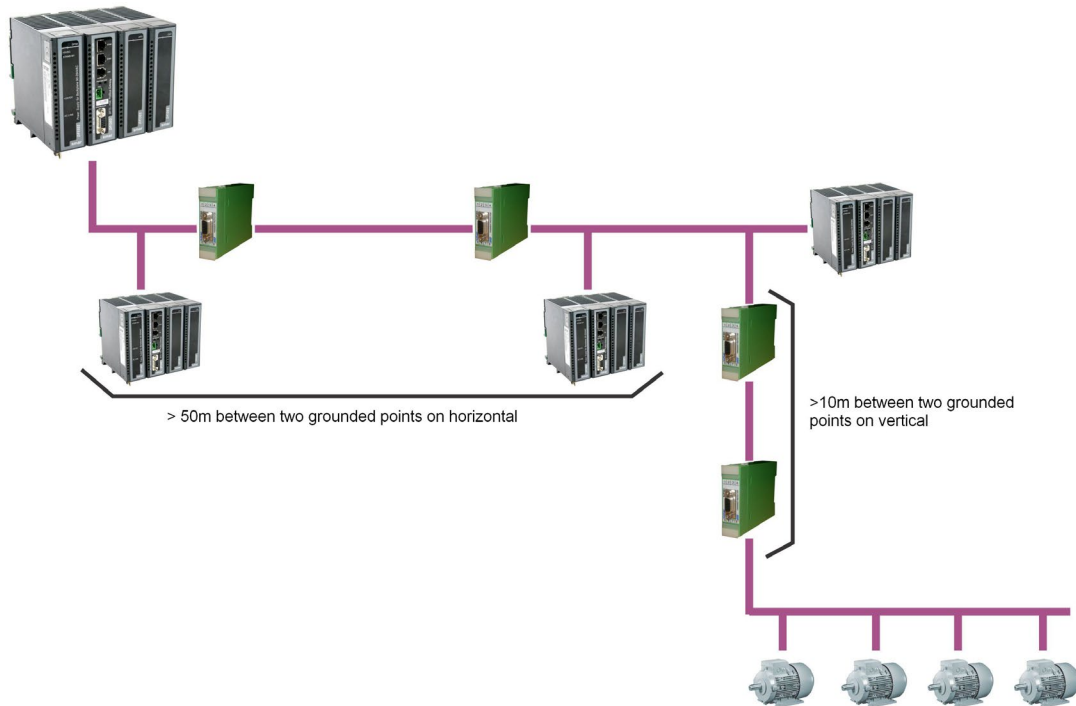


Figure 2 – Example of SUP303 application – effective distance

## Ordering Code

SUP303 – Profibus-DP transient suppressor and anti-surge

## Installation

The SUP303 can be easily mounted with a snap-on connection on DIN trail. In the case of the 35mm DIN rail, use an adequate screwdriver to prevent damage to the mechanic parts. Follow the next steps:

1. First, lean the SUP303 upper part on the mounting panel, above the DIN rail.
2. Slide SUP303 until it touches the DIN rail and press its lower part, rotating it until hearing a click.
3. To remove SUP303 apply a force opposite to the fixation, forcing it upward and pull it outside.
4. Check if it is not loose. If affirmative, the rail may not be standard.



Figure 3 – SUP303 installed on DIN rail

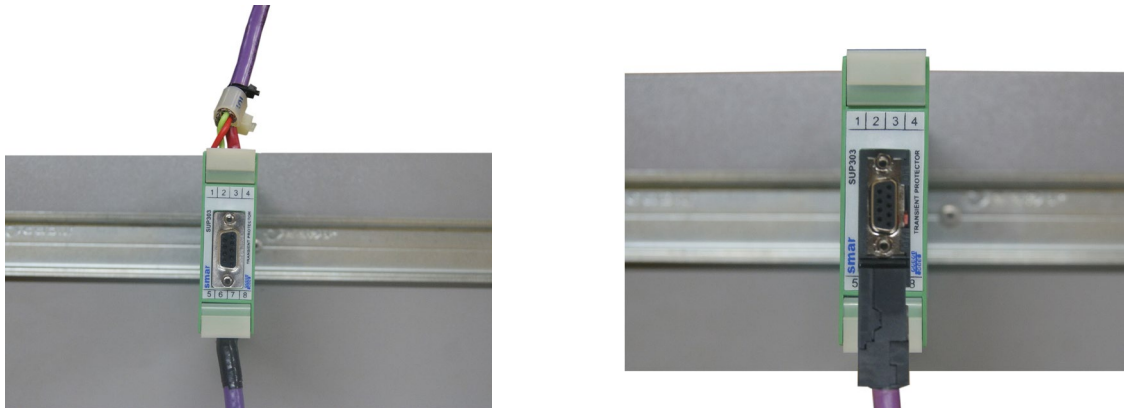


Figure 4 – SUP303 installed on DIN rail – direct connection using Profibus connector

## Connection scheme

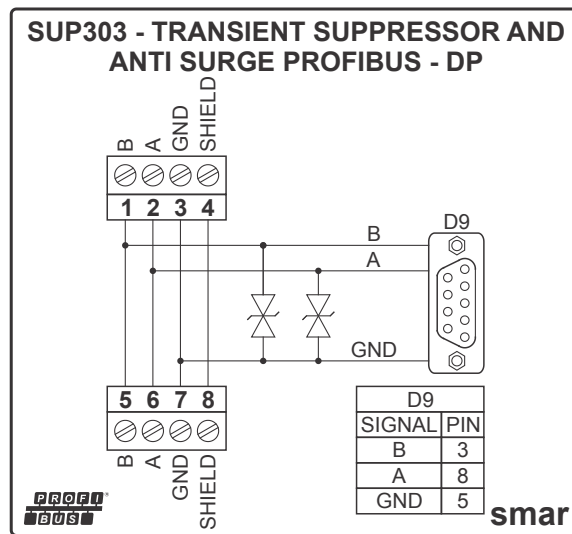


Figure 5 – SUP303 connection scheme

## Technical Specifications

FUNCTION SPECIFICATIONS	
Communication	All variants of PROFIBUS RS-485: (DP, DP-V1, DP-V2, PROFIdrive, MPI, etc.)
Standard	Compliant with PROFIBUS EN50170 standard IEC61000-4-2 (ESD) IEC61000-4-4 (EFT) IEC61000-4-5 (Surge)
Communication rates (kbps)	9.6; 19.2; 45.45; 93.75; 187.5; 500; 1500; 3000; 6000 and 12000 (see note 1)
Typical Capacitance	0,5 nF
Cable	Type A – compliant with EN50170
Protection Degree	IP-20 (DIN EN 60529 VDE 0470)
Wiring	Cable up to 2.5mm <sup>2</sup> with connectors fixed with screws

Note 1: The amount of SUP303 to be connected in the line depends on the capacitance network

PROTECTION		
Protection Levels	Transient	Protection Level
	ESD (IEC61000-4-2)	Level 4 – 8kV (contact)/ 15kV (air)
	Surge (IEC61000-4-5)	Class 3 – 25 A
	EFT (IEC61000-4-4)	Level 3 – 1 kV
	Power Cross	28 Vrms & 120Vrms
Work Direction	Line-Line and Line-Ground	
Time to block	≤ 500 ns	

ESD: Electrostatic discharge; EFT; Electrical Fast Transient; Power Cross – via AC Power Supply

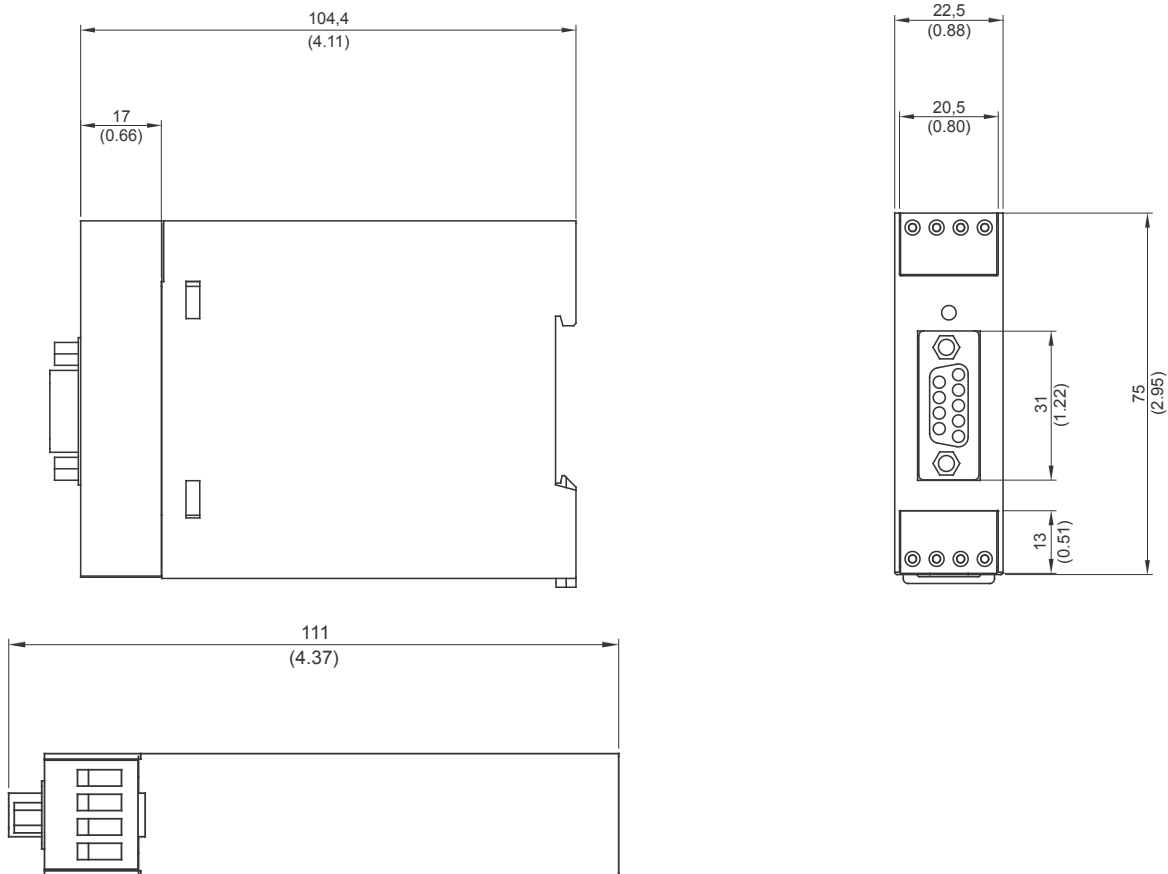
ENVIRONMENT CONDITIONS	
Operation temperature	0 to 60 °C
Humidity	Up to 90%

DIMENSIONS AND WEIGHT	
Dimensions	75.0 x 22.5 x 104.4 (Height x Width x Depth)
Weight	90 g

MOUNTING	
Support	DIN35 rail (DIN EN 60715 TH35)

## Dimensional drawings

The dimensions are in millimeters and in brackets for inches.





# Appendix

<b>smar</b>	<b>SRF – SERVICE REQUEST FORM</b>	
	<b>SUP303 – Profibus-DP transient suppressor and anti-surge</b>	
<b>GENERAL DATA</b>		
Model:	SUP303	
Serial Number:	_____	
TAG:	_____	
<b>PROCESS DATA</b>		
Interference types present in the area:	No interference ( )      Temperature ( )      Vibration ( )      Others: _____	
Ambient Temperature:	From _____ °C up to _____ °C.      Profibus-DP communication rate: _____ (Kbits/s)	
<b>FAILURE DESCRIPTOR</b>		
_____ _____ _____ _____		
<b>SERVICE SUGGESTION</b>		
Adjustment ( )	Cleaning ( )	Preventive Maintenance ( )      Upgrade ( )
Other: _____		
<b>USER INFORMATION</b>		
Company: _____		
Contact: _____		
Title: _____		
Section: _____		
Phone: _____	_____	Extension: _____
E-mail: _____	_____	Date: ____ / ____ / ____
For warranty or non-warranty repair, please contact your representative. Further information about address and contacts can be found on <a href="http://www.smar.com/en/contact-us">www.smar.com/en/contact-us</a>		

