Technical Data

Electrical Characteristics	
Maximum Operational Voltage	35 Vdc
Input Impedance	100 Ω ± 2% @ 7.8 KHz – 39kHz

Mechanical Characteristics	
Size (W × D × H)	19 × 23 × 40 mm
Weight	20g

Environmental Characteristics	
Operation (See Note)	$T_{AMB.}$ -40° C to 75° C @ RH 10% to 95%, without condensation
Storage	$T_{AMB.}$ -55° C to 85° C @ RH 5% to 95%, without condensation

Safety Characteristics	
Intrinsic Safety	FM, CEPEL, DMT and CE.

NOTE

- Range operation limited to T_{amb} -40 ºC to 40 ºC for FM and DMT
- Range operation limited to T_{amb} -20 ºC to 60 ºC for CEPEL

ATTENTION

Electrical discharges may damage semiconductors electronics components found in the boards. Generally, they may occur when these components or connectors pins in the BT302 are touched, without using any appropriated equipment to prevent the discharges.

It is extremely recommendable the following procedures:

- ✓ Before managing the BT302, discharge the electrostatics energy found in the body through appropriated equipments or even touching grounded equipments;
- ✓ Avoid touching the electronics components or the connectors pins in the BT302.

BT302

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MAR / 05
BT302
VERSION 1

FOUNDATION

INSTRUCTIONS AND INSTALLATION MANUAL

FIELDBUS TERMINATOR

BT302ME

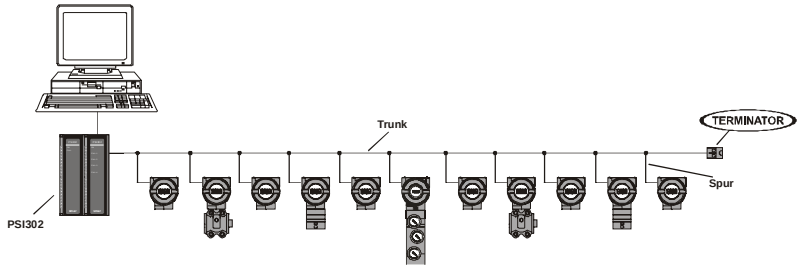

Fig. 4 – FIELDBUS FOUNDATION - Bus Topology

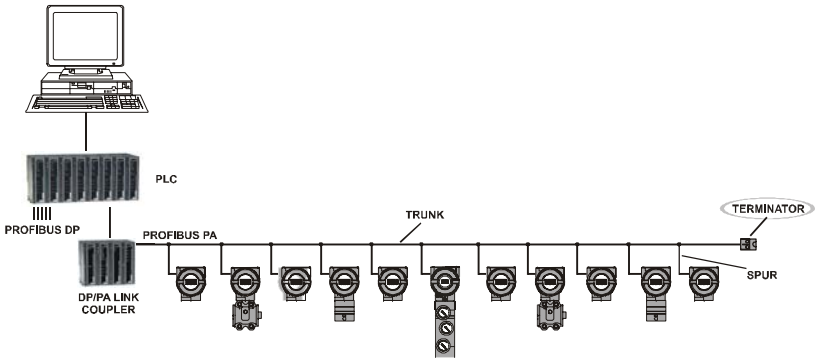

Fig. 5 - PROFIBUS PA - Bus Topology

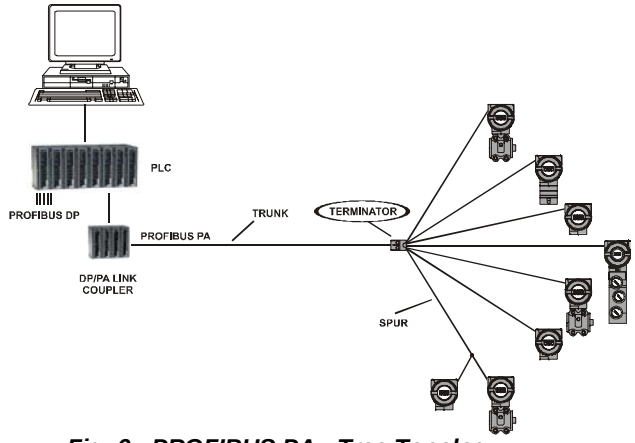

Fig. 6 - PROFIBUS PA - Tree Topology

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web: www.smar.com

Specifications and information are subject to change without notice.
For the latest updates, please visit the SMAR website above.

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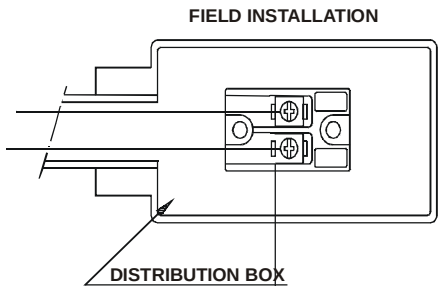

Fig. 2 – BT302 Mounting in distribution box

A fieldbus network needs two terminators, one in each end of the main trunk. Therefore, if a terminator is already built in to the Fieldbus power supply or power supply impedance, such as **SMAR PSI302,** only one **BT302** is required as Figures 3 and 4 indicate or when the field devices are connected to DP/PA link or coupler devices as you can see in the Figures 5 and 6.

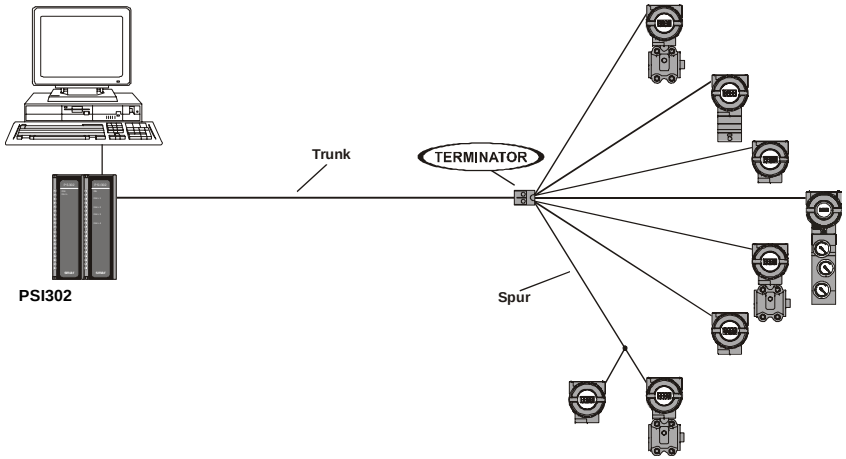

Fig. 3 - FIELDBUS FOUNDATION - Tree Topology

INTRODUCTION

In fieldbus networks, a frame is transmitted by modulating current, and the frame reception is done by sensing voltage.

The primary function of the bus terminator is to avoid reflection of the signal. In an infinite signal transmission line whose characteristic impedance is Z_0, the communication signals flow unidirectionally. If the line has one junction, there is an impedance mismatch (input impedance is different from the characteristic impedance of the line). In such case, the signal meets a barrier which causes a signal reflection, whose amplitude is proportional to the impedance mismatch. This reflection, whose direction is opposite to the transmitted signal, will be superimposed on the transmitted signal, causing major distortions on the original signal. If in all line ends and junctions the impedances match, the reflection effect will be eliminated, as in an infinite line.

As per the standard, a fieldbus network shall present a characteristics impedance Z_0 equal to 100 Ω ±20% @ 31.25KHz and the terminators shall present an impedance Z_0 equal to 100 Ω ±2%, over the frequency range of 7.8 kHz to 39 kHz (0,25 x 31,25 KHz to 1,25 x 31,25 KHz).

Part number

BT302 – Fieldbus Bus Terminator

BT302 FIELDBUS TERMINATOR

Description

The Fieldbus Terminator - **BT302** is a terminator specifically designed for industrial plant applications.
This device has been developed to comply with the requirements of IEC 1158-2 (ISA –S50.02-1992) and it may be used both in safe and hazardous areas, in accordance with the intrinsic safety standards requirements.

Its concept is extremely simple, consisting of a resistor of 100 Ω in series with capacitor of 1 µF. Only highly accurate components with a low drift to temperature are used. The circuit is inside and easy-to-install and completely tight enclosure.

Installation

The **BT302** device may be panel mounted or installed in distribution boxes. In order to fix it with screws, the product is supplied with a label (drilling template) showing the markings of the holes. Figure 1 shows the hook-up scheme using the drilling template, and Figure 2 shows the field installation in a distribution box.

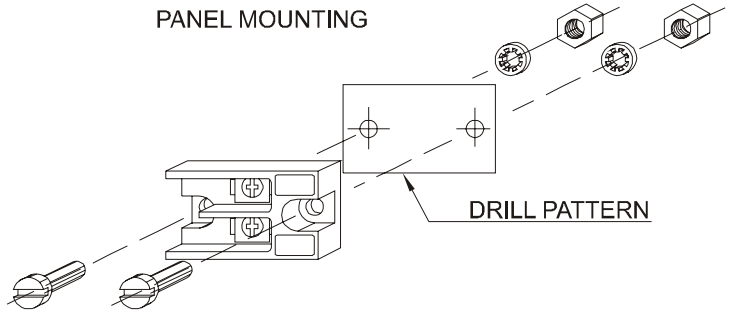

Fig. 1 – BT302 – Panel Mounting