PA Link/B

Datasheet

A-PAL/B

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1. PREFACE

1.1. ABOUT THIS DOCUMENT

This document contains the technical data for the PA Link /B PROFIBUS PA module.

1.2. FEATURES

The PA Link will allow the user to interface PROFIBUS PA DPV0/DPV1 to either EtherNet/IP or Modbus.

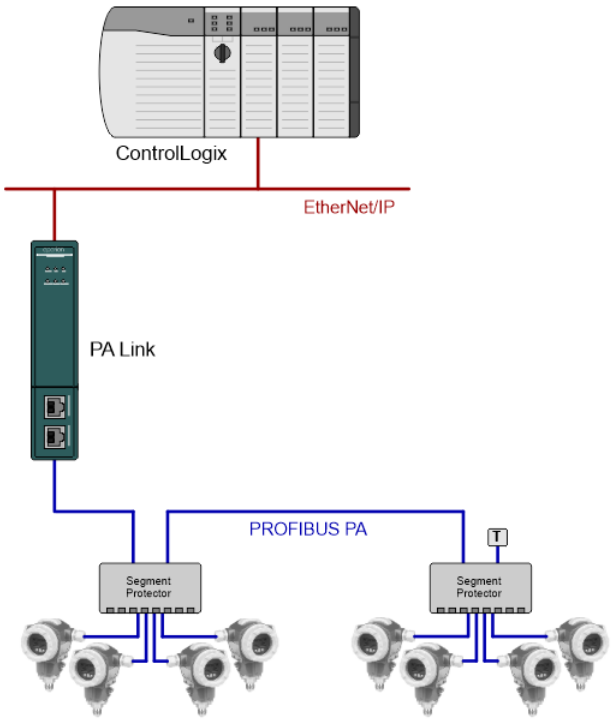


Figure 1.1 – PA Link typical PROFIBUS Master architecture

The PA Link, when configured as a Master can exchange up to 2 kilobytes of PROFIBUS PA device and status data.

The PA Link has two Ethernet ports allowing the user to have either a Linear or Ring (Device Level Ring – DLR) Ethernet topology. The Ethernet ports can also be setup for port mirroring allowing for better fault analysis.

The PA Link can synchronize to an NTP Server allowing for automatic time synchronization. It also supports an onboard non-volatile event log for improved fault finding.

The PA Link has a built-in Power Conditioner which can supply up to 420mA. The power conditioner is protected against a configurable overcurrent limit. The module also has a configurable built-in fieldbus terminator.

PROFIBUS PA Master
The PA Link can exchange process data (DPV0) with up to 32 PROFIBUS PA slave devices. The data is formatted into the engineering units for use in either a Logix platform or Modbus device by using the automatically generated mapping imports for Logix User Defined Data Types (UDTs) or padding for Modbus Registers. The latter ensures alignment with the 16-bit data structure.

The PA Link also provides DPV1 communication allowing the user to exchange DPV1 Class 1 and Class 2 data with each slave device. The PA Link Gateway DTM can be used to configure and parameterize each slave device using Device Type Manager (DTM) technology.

The PA Link will allow the user to monitor and extract DPV1 alarms from each slave device on the connected PROFIBUS PA fieldbus from either a Logix controller or Modbus Master device.

The PA Link provides a range of statistics and tools to provide a detailed diagnostic overview of each PA Link which speeds-up fault finding. The Slate configuration utility allows the user to perform a PROFIBUS PA packet capture of the running fieldbus which can be used to analyse the bus behaviour and packets received. The PA Link also provides global and device specific statistics.

1.3. ARCHITECTURE

The figures below provide an example of the typical network setup for a PROFIBUS Master architecture using either an EtherNet/IP or Modbus TCP Interface.

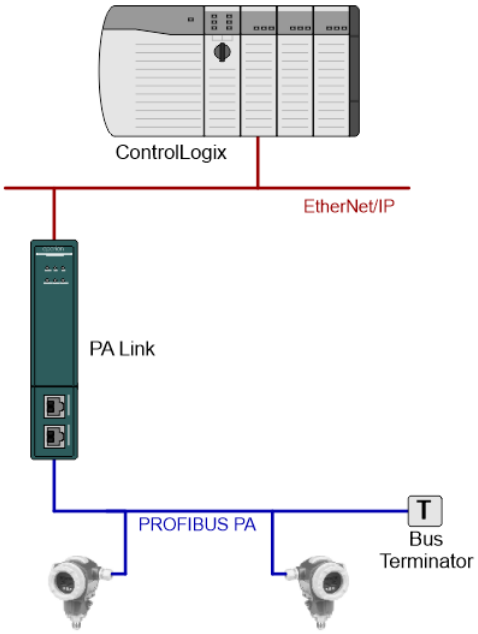


Figure 1.2 – PA Link PROFIBUS Master to EtherNet/IP architecture (Basic)

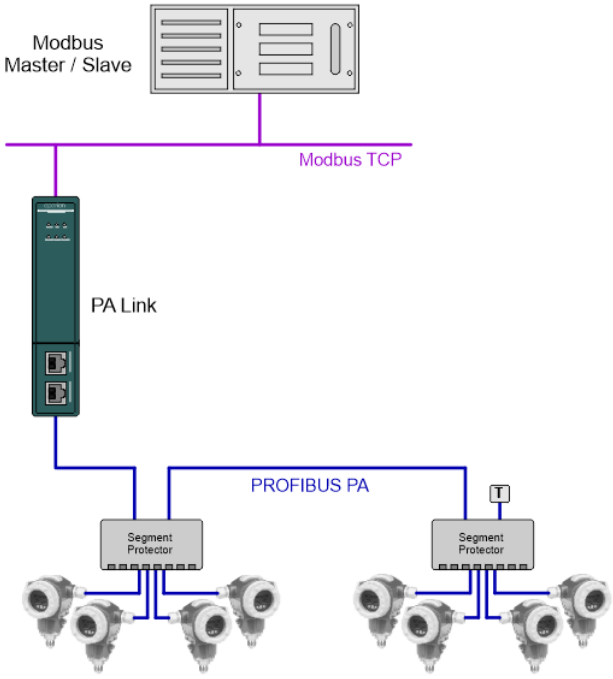


Figure 1.3 – PA Link PROFIBUS Master to Modbus TCP architecture

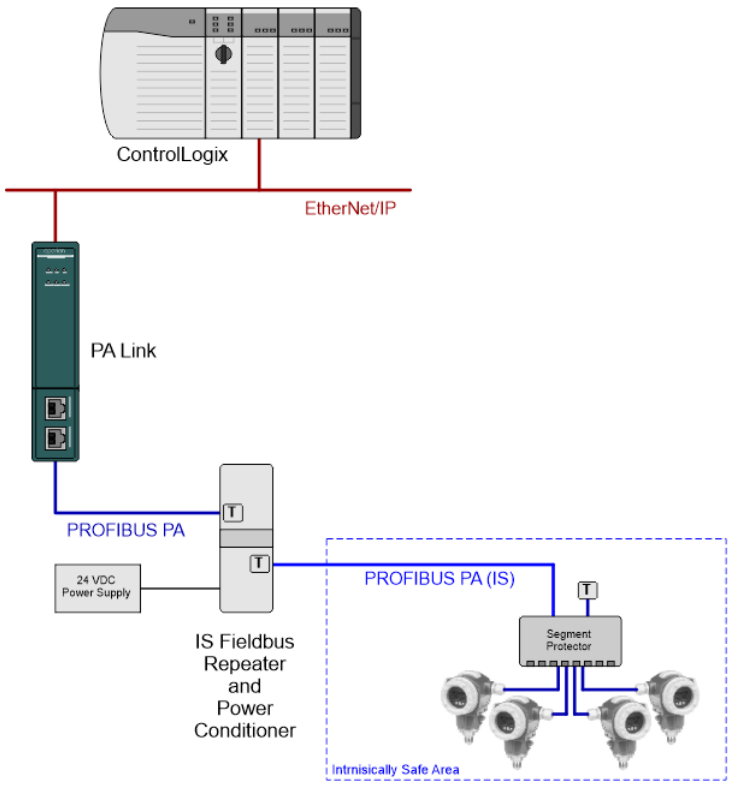


Figure 1.4 – PA Link PROFIBUS Master with External Intrinsically Safe Repeater

2. TECHNICAL SPECIFICATIONS

2.1. DIMENSIONS

Below are the enclosure dimensions as well as the required DIN rail dimensions. All dimensions are in millimetres.

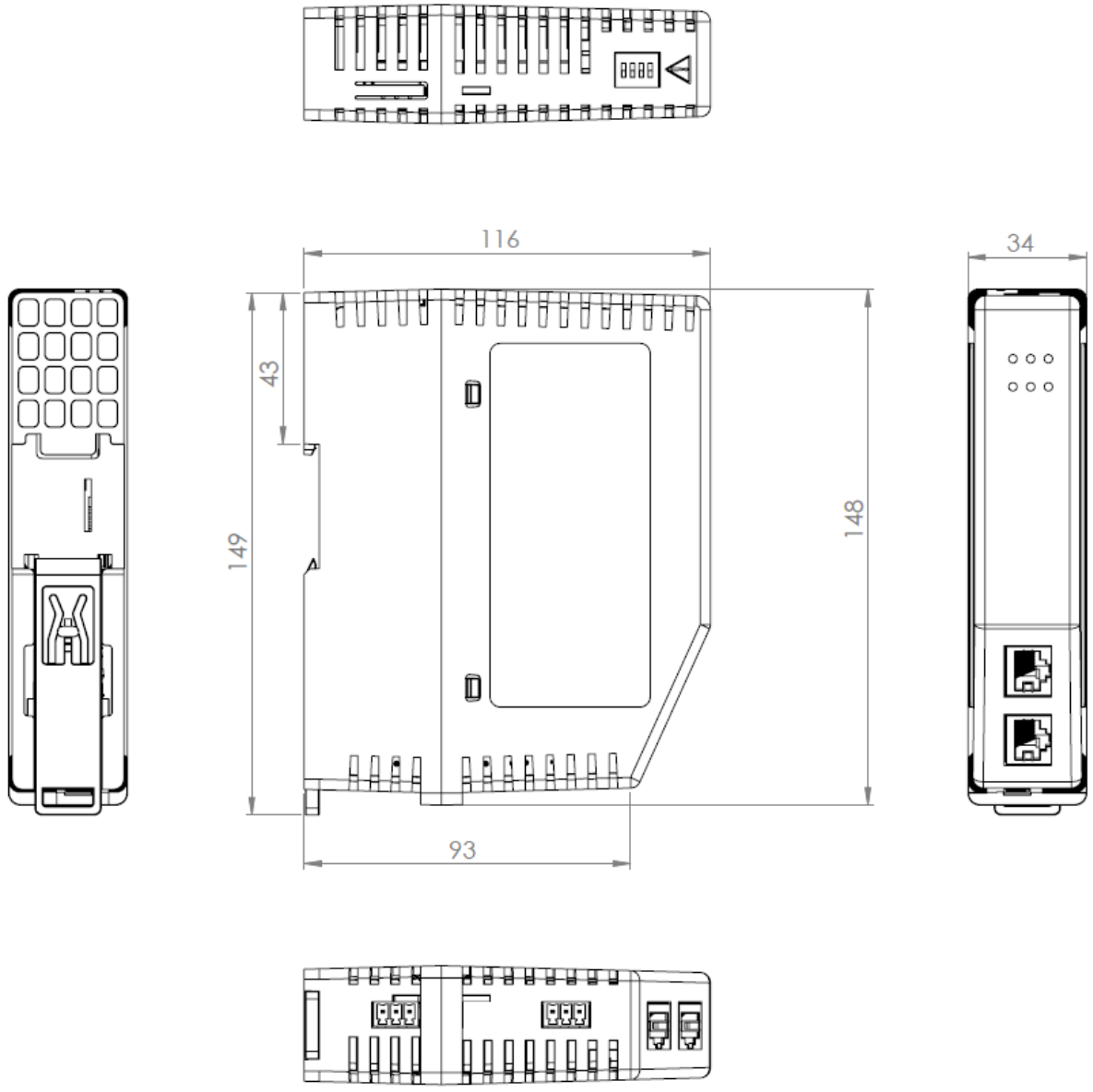


Figure 2.1 – PA Link enclosure dimensions

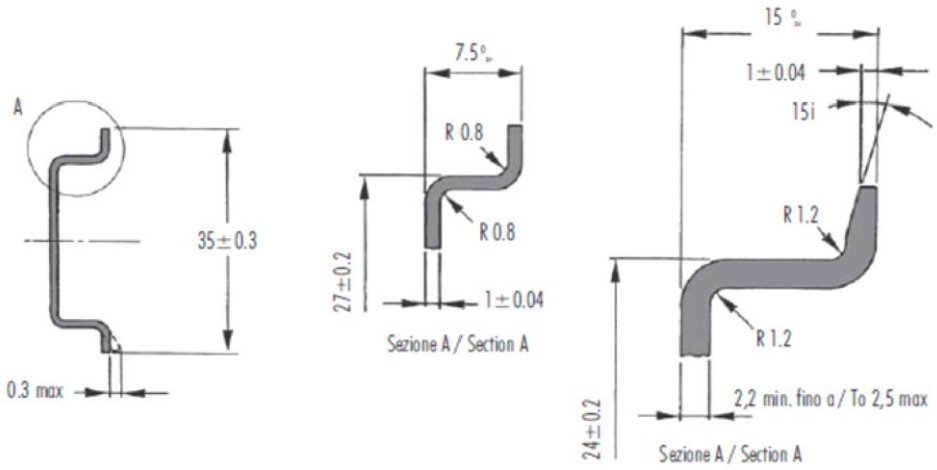


Figure 2.2 - Required DIN Rail dimensions

2.2. ELECTRICAL

Specification	Rating
Power requirements	Input: 22 – 26 V DC
Power consumption	Maximum : 135 mA @ 24V => 3.3 W (No Bus Load) Maximum : 580 mA @ 24V => 14.0 W (Full Bus Load – 420 mA)
Connector	3-way terminal
Conductors	24 – 18 AWG
Enclosure rating	IP20, NEMA/UL Open Type
Temperature	-20 – 70 °C (Power Conditioner Load <= 220 mA) -20 – 60 °C (Power Conditioner Load <= 320 mA) -20 – 50 °C (Power Conditioner Load <= 420 mA)
Earth connection	Yes, terminal based
Emissions	IEC61000-6-4
ESD Immunity	EN 61000-4-2
Radiated RF Immunity	IEC 61000-4-3
EFT/B Immunity	EFT: IEC 61000-4-4
Surge Immunity	Surge: IEC 61000-4-5
Conducted RF Immunity	IEC 61000-4-6

Table 2.1 - Electrical specification

2.3. ETHERNET

Specification	Rating
Connector	RJ45
Conductors	CAT5 STP/UTP
ARP connections	Max 40
TCP connections	Max 40
CIP connections	Max 10
Communication rate	10/100Mbps
Duplex mode	Full/Half
Auto-MDIX support	Yes
Embedded switch	Yes, 2 x Ethernet ports

Table 2.2 - Ethernet specification

2.4. PROFIBUS PA

Specification	Rating
Connector	3-way terminal
Conductor	24 – 18 AWG
PA Master Mode Support	DPV0 Data Exchange DPV1 Class 1 Messaging DPV1 Class 2 Messaging DPV1 Alarming
Maximum Slave Devices	32
Isolated	Yes
Internal Power Conditioner Voltage	Maximum: 23.0 V DC Minimum: 19.0 V DC
Internal Power Conditioner Current	Maximum: 420 mA – Max. Ambient Temperature <= 50 °C Maximum: 320 mA – Max. Ambient Temperature <= 60 °C Maximum: 220 mA – Max. Ambient Temperature <= 70 °C Note: Includes 20mA for internal MAU
Internal Termination	100 Ω - Software Enabled

Table 2.3 – PROFIBUS PA specification

2.5. CERTIFICATIONS

Certification	Mark
CE Mark	CE
RoHS2 Compliant	RoHS2
ODVA Conformance	EtherNet/IP™
UL Mark File: E494895	c UL us LISTED CLASS 1, DIV 2, GROUPS A, B, C, D
ATEX	Ex II 3 G Ex nA IIC T4 X Gc -20°C ≤ Ta ≤ 70 °C
UKCA	UK CA

Table 2.4 – Certifications