

# Signal Amplifier

Zeus Medical Gas Alarm Systems  
Operation and Maintenance Manual

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#### Important

Personnel must make themselves familiar with the contents of this manual and the function of the unit before installing, operating or maintaining any Zeus 15 Serial Signal Amplifier.

Information contained in this manual is correct at the date of publication. The policy of Pneumatech Medical Gas Solutions is one of continuous product improvement. Pneumatech Medical Gas Solutions reserves the right to make changes that may affect instructions in this manual without prior notice.

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## 0. SAFETY, STORAGE AND HANDLING

### 0.1 Symbols

The following symbols apply to this product and are used in these instructions and on the product in question. The meanings of these symbols are as specified below: -

	Read instructions
	Warning - dangerous voltage
	Ambient temperature range
	Ambient humidity range
	Ambient pressure range
	Date of manufacture
	Caution - system alarm
	Power on
	Mute switch
	Test lights
	Protective earth
	Alternating current

### 0.2 Environmental Conditions

Min ambient temperature - 0 degrees Celsius  
 Max ambient temperature - 40 degrees Celsius  
 Min relative humidity (non-condensing) - 10%  
 Max relative humidity (non-condensing) - 95%  
 Atmospheric pressure range - 70-110 kPa

### 0.3 Cleaning

The alarm cover and fascia should be wiped over with a damp cloth frequently to remove any dust or foreign substances.

### 0.4 Environmental Protection

Discard the unit and/or components in line with WEEE regulations, or other local applicable regulations.

## 0.5 Electromagnetic Interference

Ensure any input and data cables are physically separated from other mains and data cables.

## 0.6 Electrical Details

**WARNING...** It is necessary to check the integrity of the power source for safety at regular intervals. These checks should be carried out annually and replacement power supplies used is necessary.

Power source:

Mains operated using 85.5 - 264V, at 48 - 62 Hz, alternating current, from an essential circuit.

Current requirements:

3.0 amps

Type of protection against electric shock:

Class 1 (Mains supplied equipment using a protected earth)

Mode of operation:

Continuous (equipment may be left switched on indefinitely)

Degree of protection against ingress of liquids:

IPX0 (Not protected)

Degree of mobility:

Permanently installed (This unit is electrically connected by permanent means)

Degree of protection:

Type B (no Applied Part or with and Applied Part not designed to meet F type (floating) requirements)

Degree of protection against flammable anaesthetic mixtures:

Not protected (not suitable for use with flammable gases)

# 1. DESCRIPTION AND OPERATION

## 1.1 Introduction

The Penlon MGS Zeus 15 Serial Signal Amplifier provides a means to boost the RS-485 data signal of the Zeus 15 alarm system. The standard maximum length of a data cable segment is 1200 metres. Using a serial signal Amplifier allows for two cable segments, each up to 1200 metres.

In addition, the Penlon MGS Zeus 15 Serial Signal Amplifier allows non-standard network topologies, for example with branches, to be built.

The Penlon MGS Zeus 15 Serial Signal Amplifier is sup-

plied in an IP67 rated enclosure, so can be installed outside if needed.

TABLE 1: Zeus 15 Signal Amplifier Dimensions

Height(mm)	200
Length(mm)	200
Depth(mm)	180

## 1.2 Configuration

The Westermo RD-48 at the heart of the Penlon MGS Zeus 15 Serial Signal Amplifier is pre-configured at the factory. If difficulties are encountered, the DIP switch settings should be checked. Locations of the DIP switches are discussed in the manual for the Westermo RD-48, enclosed with the serial signal Amplifier.

Switch	Setting
SW1	OFF, OFF, ON, OFF, ON, OFF
SW2	ON, ON, ON, ON
SW3	OFF, OFF, OFF, ON, ON, ON
SW4	OFF, OFF, OFF, ON, ON, ON

TABLE 2: Signal Amplifier Configuration

NB Depending upon exact installation, the settings of SW3 and SW4 may change from those defined above. For more information, check the manual for the Westermo RD-48 enclosed with the signal Amplifier.

## 1.3 LED Status Indicators

The Westermo RD-48 is equipped with a series of diagnostic LEDs to aid in fault finding. For more details on these, refer to the manual for the Westermo RD-48.

# 2. INSTALLATION

## 2.1 Power Supply

The Penlon MGS Zeus 15 Serial Signal Amplifier requires a double-pole switched fused connection unit, fitted with a three amp fuse.

## 2.2 Location

The Penlon MGS Zeus 15 Serial Signal Amplifier can be fitted in any suitable location, for example in plant rooms, risers and ceiling voids.

## 2.3 Fitting

The Penlon MGS Zeus 15 Serial Signal Amplifier comes with a fixing kit that suits most installations. Mark out fixing

points and secure the serial signal Amplifier to a suitable mounting surface.

### 2.4 Connections

The cable segments should be connected to the LINE A and LINE B connections, with the "A" wire connecting to the T- terminal, and the "B" wire connecting to the T+ terminal

The R+ and R- terminals are not used.

Ensure that all panels on both network segments are powered down during installation to prevent short circuits.

## 3. MAINTENANCE

The Serial Signal Amplifier requires no specific maintenance, and should provide years of service with little or no intervention.

Should spares be required, please contact the Staveley Office for pre-configured parts.

## 4. RECOMMENDED SPARES

Westermo RD-48 HV Repeater	Part No. 6000177
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## 5. WIRING DIAGRAMS

The following pages illustrate the possibilities for wiring the serial signal Amplifier.

In addition to boosting the signal for longer runs, it also allows non-standard cable topologies (such as T's and stars) to be produced.

Figure 1. Simple Signal Amplifier

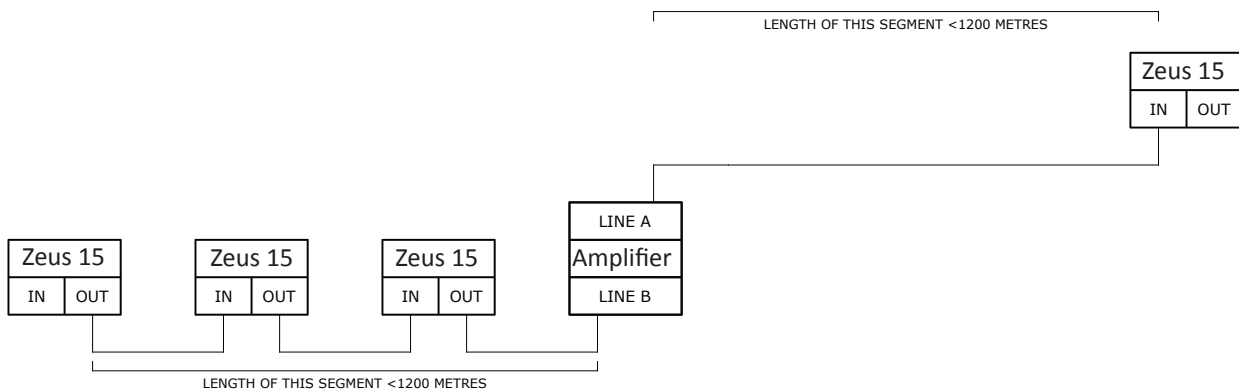
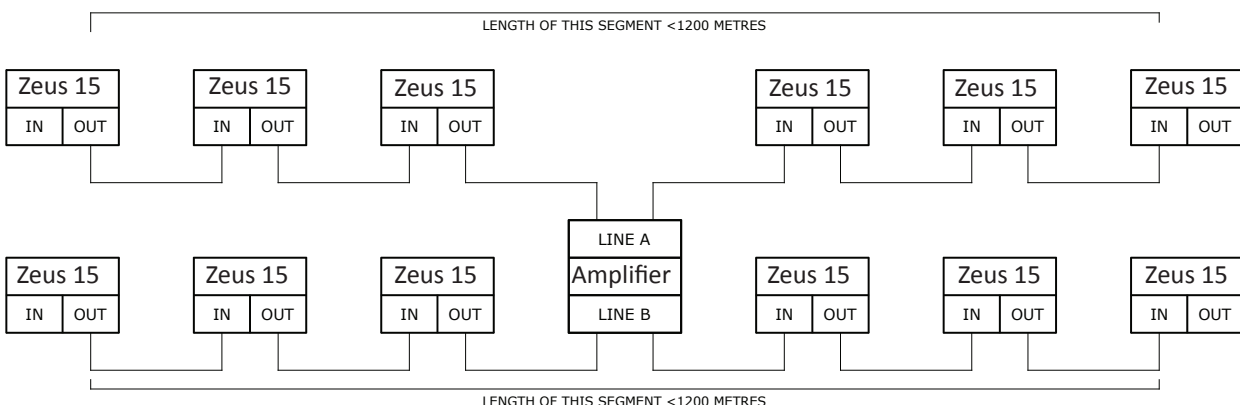
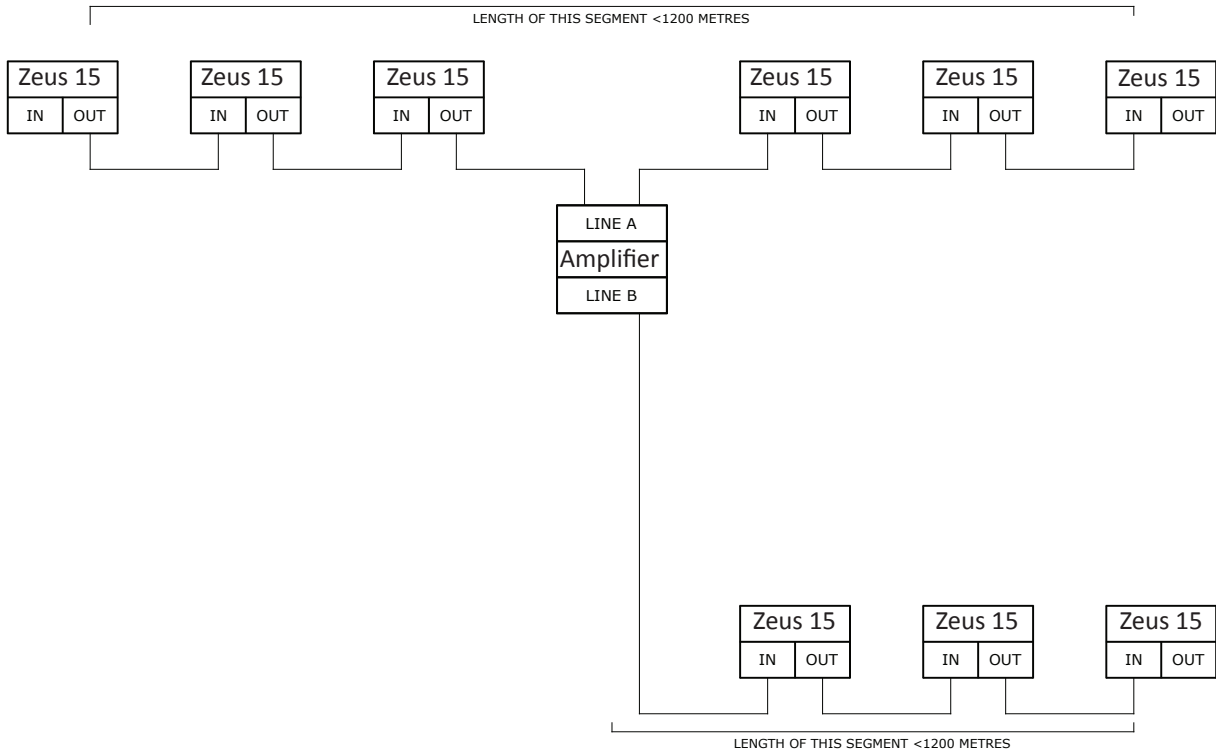


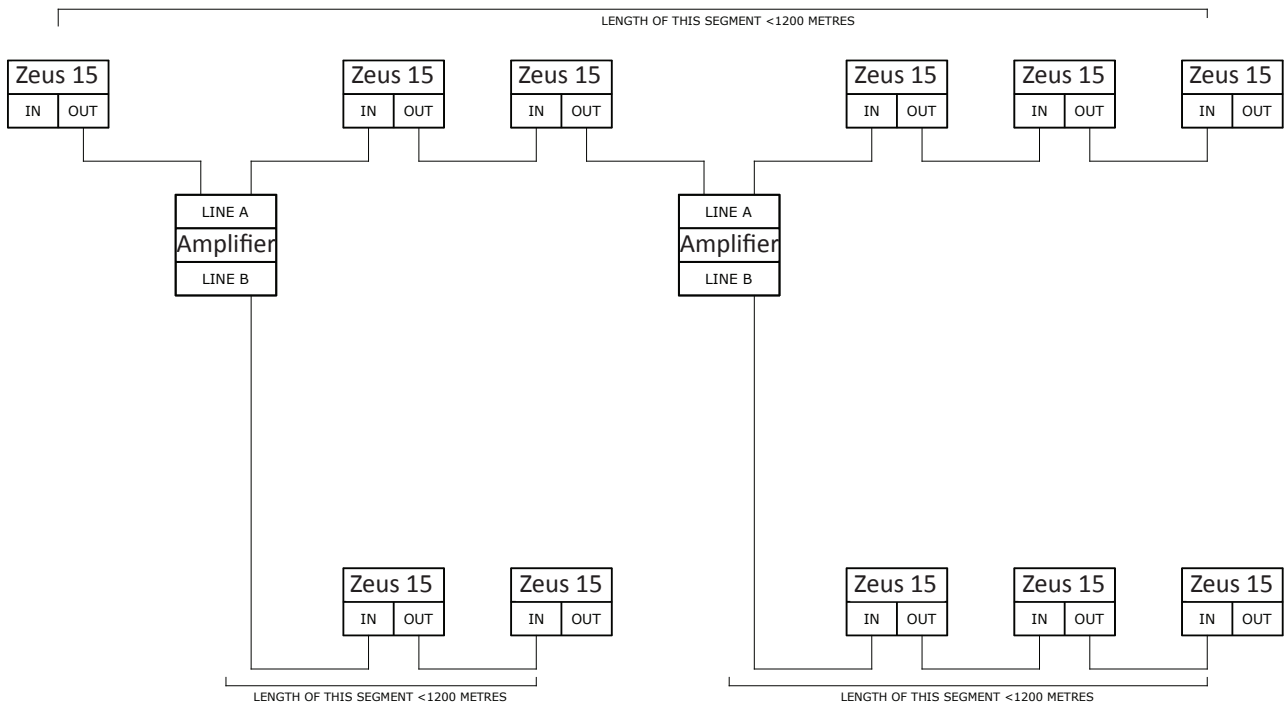
Figure 2. Star Structure



**Figure 3. Single branch structure**



**Figure 4. Double branch structure**



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