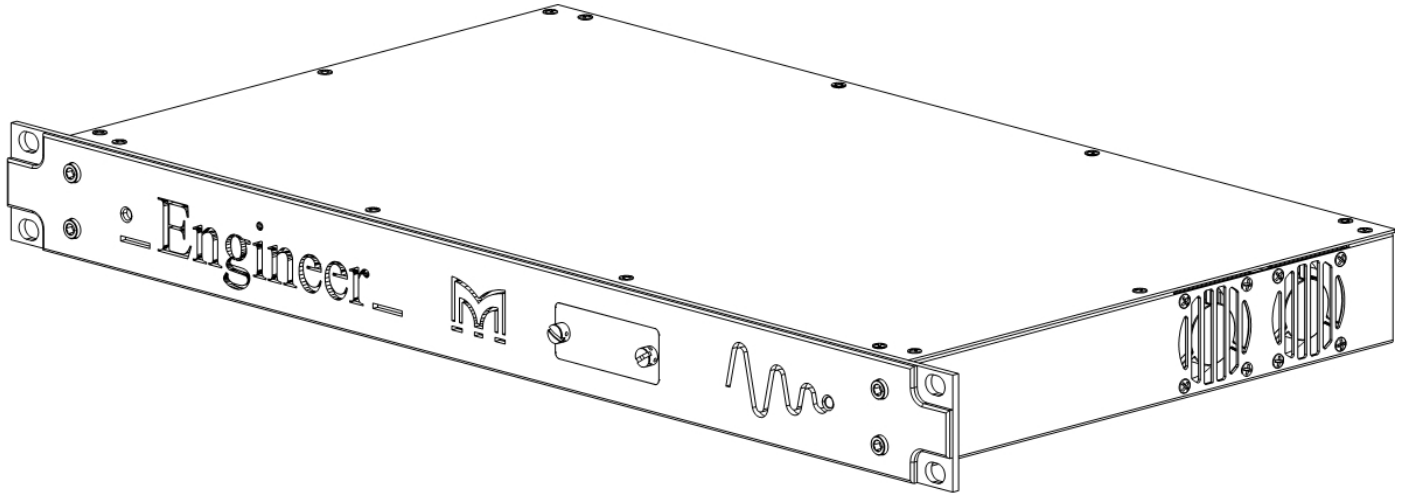


# Martin Audio Engineer 418 & 818



## USER MANUAL

# Index

1. Chapter 1: Description .....	6
1.1 Application .....	6
1.2 Features .....	6
1.3 Products .....	8
1.4 Engineer Remote .....	9
1.5 Engineer Remote Spider (optional).....	9
1.6 Included Items.....	10
1.7 Front Panel layout .....	10
1.8 Rear Panel layout.....	11
1.9 Installation requirements.....	12
1.10Connecting Audio.....	12
1.11Connection instructions for Phoenix terminal blocks.....	13
1.12Connecting RS-232.....	14
1.13Connecting RS-485.....	14
1.14Power Requirements.....	15
1.15Power switch.....	15
1.16Power LED.....	15
1.17RS-232 front panel cover .....	16
2. Chapter 2: Engineer 818 .....	17
2.1 Included Items.....	17
2.2 Front Panel layout .....	17
2.3 Rear Panel layout.....	18
2.4 Installation requirements.....	19
2.5 Connecting Audio.....	19
2.6 Connection instructions for Phoenix terminal blocks.....	20
2.7 Connecting RS-232.....	21
2.8 Connecting RS-485.....	21
2.9 Power Requirements.....	22
2.10Power switch.....	22
2.11Power LED.....	22
2.12RS-232 front panel cover .....	23
2.13Panel layout.....	24
2.14Installation .....	25
2.15Power .....	26
2.16Wiring.....	26
2.17Wiring scheme .....	27
2.18Header .....	28

2.19	Connecting multiple Engineer Remotes to an Engineer ...	28
2.20	Checking proper connection .....	28
2.21	Recalling presets .....	29
2.22	Changing volumes .....	29
3.	Chapter 5: Troubleshooting .....	30
3.1	Power .....	30
3.2	Data .....	30
3.3	Remote .....	30
3.4	Audio .....	31
4.	Appendix 1: Maintenance .....	32
4.1	Housing .....	32
4.2	Servicing .....	32
5.	Appendix 2: Engineer 418/818 Specifications .....	33

# Declaration of Conformity

Manufacturer's name:

XLNT Advanced Technologies

Adress:

Zonnebaan 42  
3542 EG Utrecht  
The Netherlands

Declares that the product:

Name: Engineer 418

Conforms to the following EEC Directives

Low Voltage Directive 2006/95/EC  
EN 60065 : 2002  
IEC 60065 :2001 Modified

EMC Directive 2004/108/EC  
EN 55103-1 (1996)  
EN 55103-2 (1996)  
EN 61000-3-2 (2000) +A2 (2005)  
EN 61000-3-3 (1995) + A1 (2001) + A2 (2005)

Utrecht 25 January, 2008

XLNT Advanced Technologies

# Declaration of Conformity

Manufacturer's name:

XLNT Advanced Technologies

Adress:

Zonnebaan 42  
3542 EG Utrecht  
The Netherlands

Declares that the product:

Name: Engineer 818

Conforms to the following EEC Directives

Low Voltage Directive 2006/95/EC  
EN 60065 : 2002  
IEC 60065 :2001 Modified

EMC Directive 2004/108/EC  
EN 55103-1 (1996)  
EN 55103-2 (1996)  
EN 61000-3-2 (2000) +A2 (2005)  
EN 61000-3-3 (1995) + A1 (2001) + A2 (2005)

Utrecht 25 January, 2008

XLNT Advanced Technologies

# Important Safety Instructions

It is extremely important to read ALL safety information and instructions provided in this manual and any accompanying documentation before installing and operating the products described herein.

Heed all cautions and warnings during installation and use of this product.

Keep this instruction manual for future reference.

This unit does not contain any user serviceable parts.

Do not open this unit. Doing so will void warranty and might present a risk. Servicing must be performed by qualified personnel only. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug being damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

This unit is designed for indoor use. Do not use this unit in a wet or damp environment or near to water.

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

This unit is not designed for residential use.

Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

Do not defeat the safety purpose of the polarized or grounding-type plug. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete connector.

Always replace a blown fuse by a compatible fuse.

Do not connect or disconnect the power connector under load.

Protect the power lead from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. When damaged, replace the power lead.

Unplug this apparatus during lightning storms or when unused for long periods of time.

## Disclaimer

All rights reserved. Although the information in this manual has been compiled with care, individual items may vary in size, ratings and functionality from what is included in this manual.

Martin Audio Ltd. disclaims any liability for damage, losses or other consequences suffered or incurred in connection with the use of the measurements, data or information contained in this manual. Martin Audio Ltd. may change this product without prior notice.

Copyright: TeamProjects BV 2007.

Microsoft®, Windows Vista® and Windows® are either registered trademarks or trademarks of Microsoft Corp.

## About this Manual

This Installation Manual provides basic information explaining the functionality, installation, operation and maintenance of the Martin Audio Engineer 418 and Martin Audio Engineer 818.

Please refer to the software manual of this product for further instructions on how to program this device for operation.

This manual serves as a first reference for the use of this product.

## Customer Service and Warranty

This product is supplied with a limited warranty for 24 months following purchase.

To obtain warranty service, please contact your local Martin Audio Ltd. Dealer.

Please do not send equipment to Martin Audio Ltd. without authorization. If asked to do so, please add a copy of the original invoice, together with the faulty device in a secure shipping container.

## Recycling and hazardous substances

This product complies with the EU RoHS Reduction of Hazardous Substances directive (2002/96/EC) and WEEE Waste Electrical and Electronic Equipment directive (2002/95/EC).

The selection of hazardous substances in all components and parts has been reviewed with care in order to comply with or exceed the RoHS directive.

If this product, when purchased and used in the EU, has reached the end of its useful life it may be returned to the original dealer at no cost or to Martin Audio Ltd. with a proof of ownership.

# 1. Chapter 1: Description

## 1.1 Application

Thank you for choosing the Martin Audio Engineer for your application. The Martin Audio Engineer is a powerful, advanced audio DSP product, built into a 19" rack mount enclosure, designed for permanently installed entertainment audio systems.

On top of the 'normal' crossover and routing functionality The Martin Audio Engineer features two unique highly advanced specialist audio algorithms.

The first one being the dream of every audio reinforcement system installer and owner: an automated sound engineer-in-a-box called 'The Engineer', operating 24-7 to maintain a quality, consistent sound in the venue.

The second one being the Basscreator algorithm, a psycho acoustical effects module which gives the appearance that small speakers are sounding like they are a lot bigger, with unexpected amounts of perceived low-frequency output.

The device also features an advanced scheduler, to have presets recalled at pre-programmed time events.

Furthermore, the device features an external remote control panel which can be connected through a RS-485 port.

This RS-485 port can also be used for controlling the device with third party serial control systems.

The combination of these features make the Martin Audio Engineer an outstanding one-box problem solver for any installation where high quality and ease of operation are important factors.

## 1.2 Features

- 4 inputs and 8 outputs with complete freely routable signal path (Engineer 418)
- 8 inputs and 8 outputs with complete freely routable signal path (Engineer 818)
- 8-band fully parametric EQ on every input.
- 8-band fully parametric EQ on every output.
- Highpass and Lowpass filters on every output with slopes up to 24 dB/oct. featuring L-R, Butterworth and Bessel filters.
- Speaker alignment delays of up to 10ms on every output.



- The most musical-sounding speaker protection limiters in the business on every output.
- Very high, musical sound quality throughout.
- Unique Engineer DSP algorithm, working 24-7 to keep a consistent sound in your venue.
- Unique Basscreator algorithm, gives small speakers the perceived low frequency response of a large speaker.
- Flexible build-in scheduler for automated preset recalling.
- RS-232 interface for extensive PC-based setup and control.
- Windows® PC software for controlling and programming.
- Programmable remote control with RS-485 interface on industry-standard RJ-45 connector.
- Up to 4 remote controls can co-operate on one Engineer through the use of an optional Remote Spider.

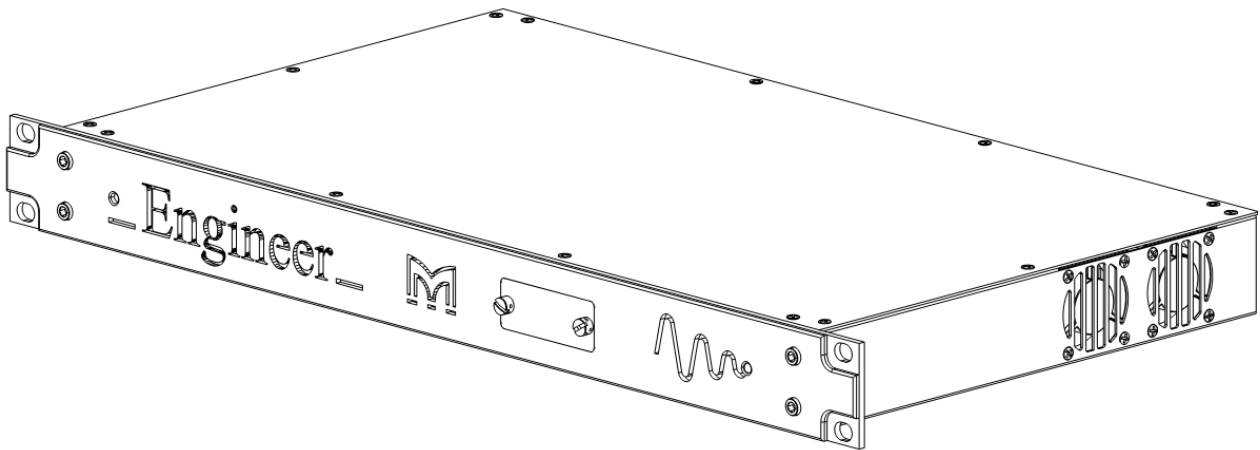
### 1.3 Products

The Martin Audio Engineer product line comprises 2 products and 2 accessories.

#### Engineer 418

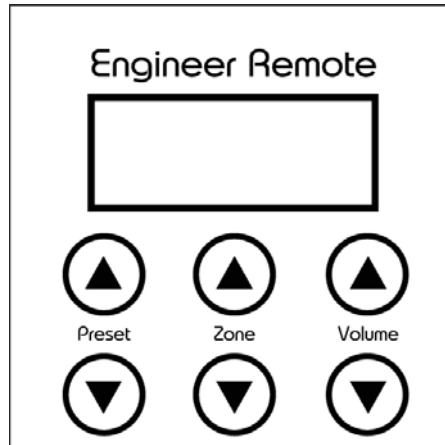
4 input-8 output advanced audio Digital Signal Processing device. 100-240V AC input. Housing is 19" rack mounted. Audio in- and outputs on balanced Phoenix terminal blocks. RS485 interface for remote control panel and third party control connection, RS-232 interface for extensive PC-based setup and control.

#### Engineer 818



8 input-8 output advanced audio Digital Signal Processing device. 100-240V AC input. Housing is 19" rack mounted. Audio in- and outputs on balanced Phoenix terminal blocks. RS485 interface for remote control panel and third party control connection, RS-232 interface for extensive PC-based setup and control.

## 1.4 Engineer Remote



Remote control panel for Martin Audio Engineer 418 and Martin Audio Engineer 818. Enables remote recall of presets and remote control of zone volumes, The Martin Audio Engineer Remote is connected to and powered from a dedicated RS-485 port on the Martin Audio Engineer 418 or Martin Audio Engineer 818. This accessory is included with every Martin Audio Engineer 418 and Martin Audio Engineer 818.

## 1.5 Engineer Remote Spider (optional)

The Martin Audio Engineer Remote Spider is an optional accessory, allowing you to connect up to 4 Martin Audio Engineer Remotes to one Martin Audio Engineer 418 or Martin Audio Engineer 818.



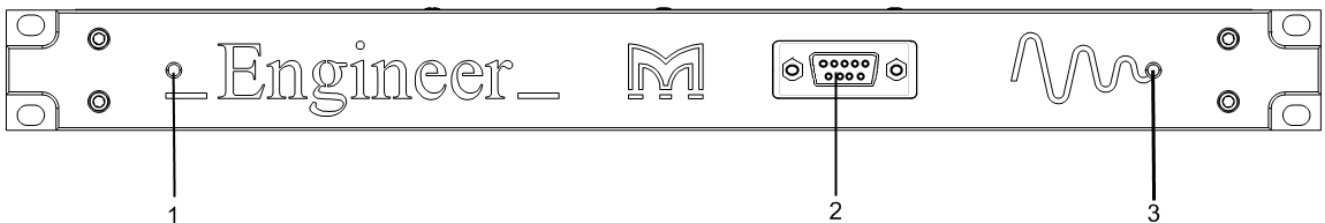
## 2. Chapter 2: Engineer 418

### 2.1 Included Items

In the box containing this manual, the following items should be present:

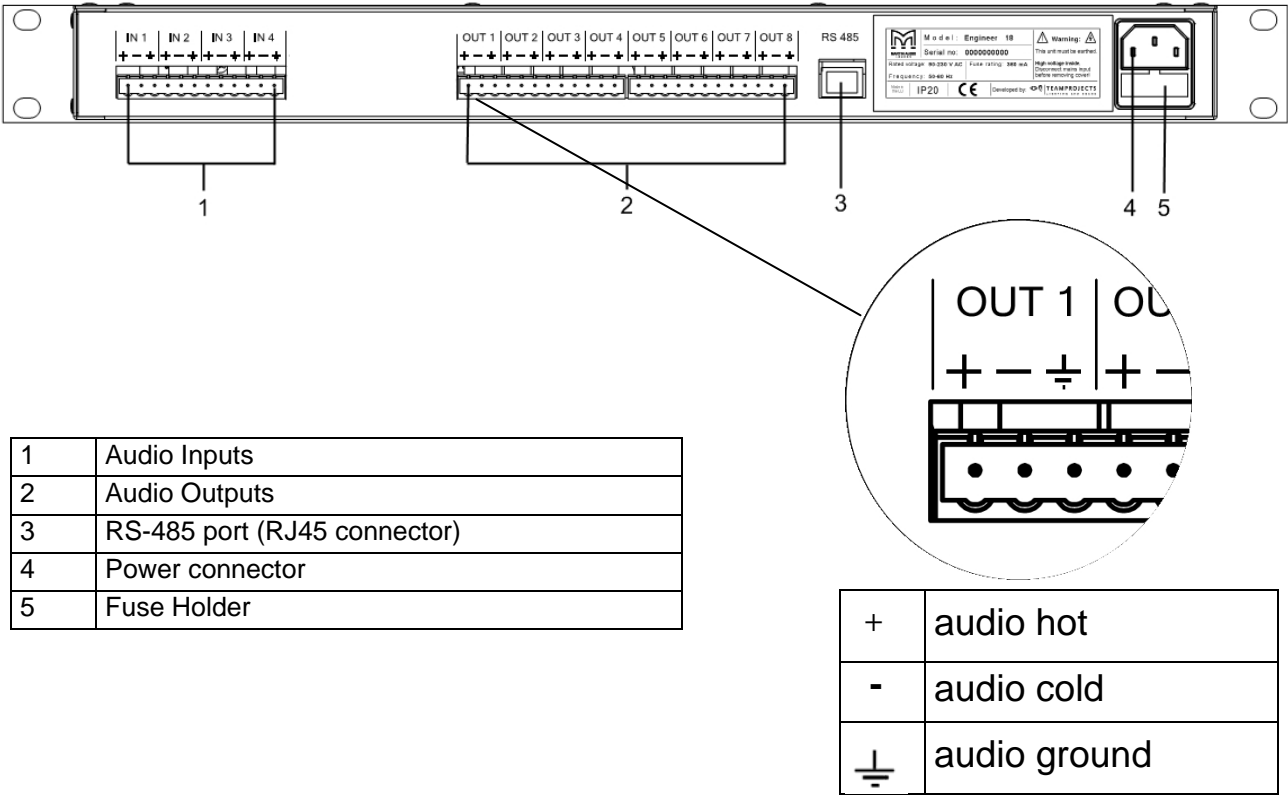
- 1 Martin Audio Ltd. Engineer 418
- 1 Engineer remote panel
- 1 Engineer remote mounting plate
- 1 Engineer front panel cover set w/ 2 screws
- 3 12-pin Phoenix plug-in terminal blocks
- 1 Fully wired 1:1 DB09-DB09 M/F RS232 cable
- 1 Manual (this manual)
- 1 Power lead
- 1 software manual
- 1 CDROM with Windows® software

### 2.2 Front Panel layout



1	Power Switch
2	RS-232 port
3	Power Led

2.3 Rear Panel layout



## 2.4 Installation requirements

The Martin Audio Engineer 418 is designed for 19" rack-mount use.

Mount the Martin Audio Engineer 418 with racking screws in a 19" cabinet. Use support strips as necessary to support the rear of the device.

Adequate ventilation and rear-support must be provided. Allow for enough ventilation into the 19" cabinet in which the Martin Audio Engineer 418 is mounted. Observe the environmental specifications (see appendix 2) at all times.

When mounting the Martin Audio Engineer 418 in a touring rack, a touring rack with shock-absorbing racking strips should always be used.

Always install the Martin Audio Engineer 418 in a level plane. A maximum allowable angle of 10 degrees is acceptable.

**Do not use the Martin Audio Engineer 418 in a wet/damp environment.**


**Do not block any ventilation slot at any time and check the proper function of the fans at regular basis. If the fans do not operate properly, the lifespan of the device will be significantly reduced and the device may even fail.**

## 2.5 Connecting Audio

Use only certified balanced & shielded audio signal cabling (e.g. Belden 8718, Tasker C208). Refer to the next paragraph for maximum allowable conductor cross sections.

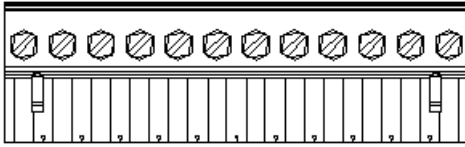
The connectors on the Martin Audio Engineer 418 accept 12-pin Phoenix terminal blocks (as supplied). Refer to the next paragraph for instructions how to terminate the audio wiring.

From left-to-right are INPUT 1-4 and OUTPUT 1-8. The connections are labeled: (please refer to rear panel layout)

- + For audio hot
- For audio cold
-  For audio ground

**Attention: Martin Audio strongly recommends the use of balanced audio connections only.**

## 2.6 Connection instructions for Phoenix terminal blocks



To connect the Phoenix terminal blocks, always use the following procedure:

- strip the jacket 20mm
- strip the wires 7 mm
- DO NOT pre tin the wires
- cover the ground wire with a heat shrink sleeving
- put the wire up to the plastic sleeve in the terminal block
- use a small flathead screwdriver to firmly close the contact
- make a strain relief so no strain is on the connection
- for suitable wire thickness, please refer to the table below

<b>Conductor cross section solid min.</b>	0.2 mm <sup>2</sup>
<b>Conductor cross section solid max.</b>	2.5 mm <sup>2</sup>
<b>Conductor cross section stranded min.</b>	0.2 mm <sup>2</sup>
<b>Conductor cross section stranded max.</b>	2.5 mm <sup>2</sup>
<b>Conductor cross section stranded, with ferrule without plastic sleeve min.</b>	0.25 mm <sup>2</sup>
<b>Conductor cross section stranded, with ferrule without plastic sleeve max.</b>	2.5 mm <sup>2</sup>
<b>Conductor cross section stranded, with ferrule with plastic sleeve min.</b>	0.25 mm <sup>2</sup>
<b>Conductor cross section stranded, with ferrule with plastic sleeve max.</b>	2.5 mm <sup>2</sup>

## 2.7 Connecting RS-232

On the front of the device is the RS-232 port for remote control and configuration of the device with a PC with the supplied Windows® Engineer software. To connect the Martin Audio Engineer to a PC use the supplied RS232 cable only. This cable is 1:1 connected, fully wired, one side fitted with a Male DB9 connector, other side a Female DB9 connector.

If a longer cable is required please observe that the maximum operational cable length is typically 45 feet.

**Warning: if the users' PC uses a grounded power supply, make sure that the the Martin Audio Engineer 418 and the PC are on the same power distribution line to avoid data errors.**

## 2.8 Connecting RS-485

On the rear of the device, next to the audio inputs, is the RS-485 port on a RJ-45 connector, used to connect the Martin Audio Engineer 418 to the Martin Audio Engineer Remote or to an external third party control unit. (e.g. Crestron/AMX). For communication protocol please refer to the Engineer software manual.

The maximum operational cable length is typically 1000 ft. on CAT-5 (Unshielded Twisted Pairs) cable.

The RS-485 connection includes a +5V power line for powering the Engineer Remote. (Please refer to the wiring scheme in the chapter "Engineer Remote")

**Warning: if an external third party control unit is used with the RS-485 port, this device must have a double isolated power supply.**



## 2.9 Power Requirements

The Martin Audio Engineer 818 must be connected to a 100-240V AC 50-60Hz electrical power supply, with a single phase, neutral and ground connection. Both the neutral and the phase of the power supply (building fuse) need to be protected by a fuse with a maximum current of 16A. For safety reasons the Martin Audio Engineer 818 must be connected to a properly grounded power outlet.

Always use the 3-pin IEC power cord supplied with the Martin Audio Engineer 418.

The power input fuse is located below the 3-pin IEC power input. Do not use a different type of fuse; always replace a blown fuse with a compatible fuse.

## 2.10 Power switch

The Martin Audio Engineer 418 has a power switch which is accessible through the hole in the front panel (please refer to the front panel layout). Although the device is designed to be left on at all times, it is possible to un-power the device with this switch. To switch ON/OFF, use a Philips #1 screwdriver to operate the power switch through the hole.

**Warning: Since the mains power plug can be used as the main disconnection device, care must be must be taken during installation that this plug is made easily accessible at all times.**

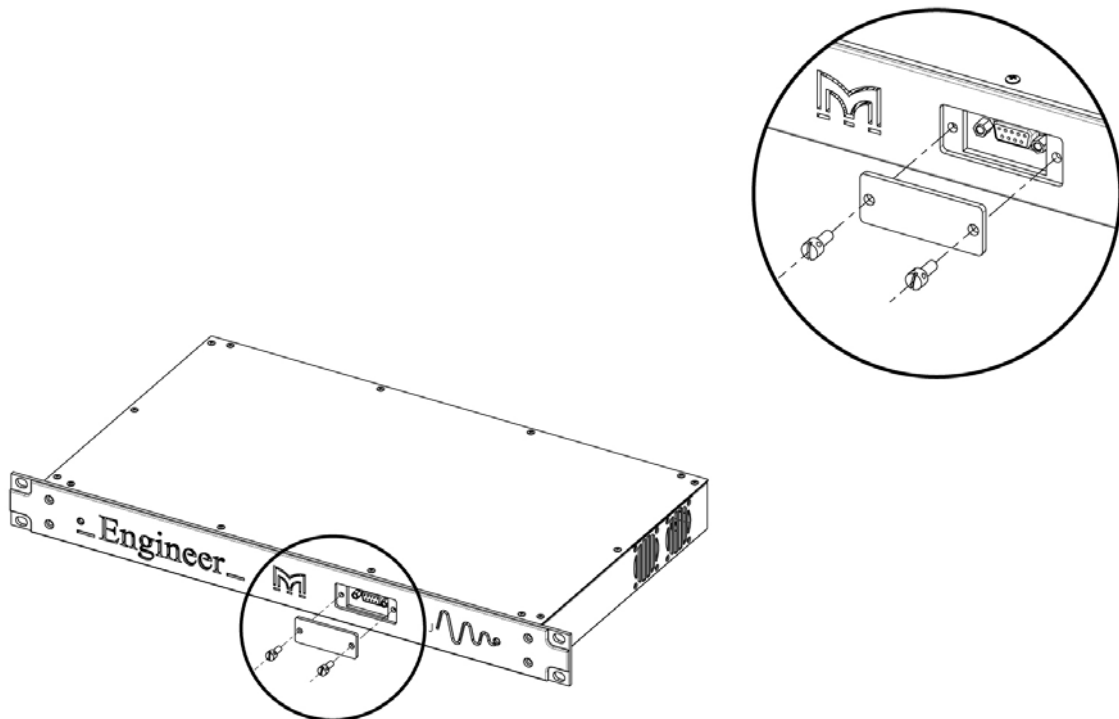
## 2.11 Power LED

The blue power LED shows the status of the isolated 5V power supply to the digital circuits. When lit, this power supply is active.

Note that the other internal power supply circuits do not have an external or internal status indicator.

## 2.12 RS-232 front panel cover

When the RS-232 port on the front of the device is not used, the RS-232 port may be covered with the supplied RS-232 front panel cover. Use the two supplied screws to attach the cover to the front panel. These screws have holes drilled through the heads which may be used to seal the RS-232 port so unwanted operation is prohibited.



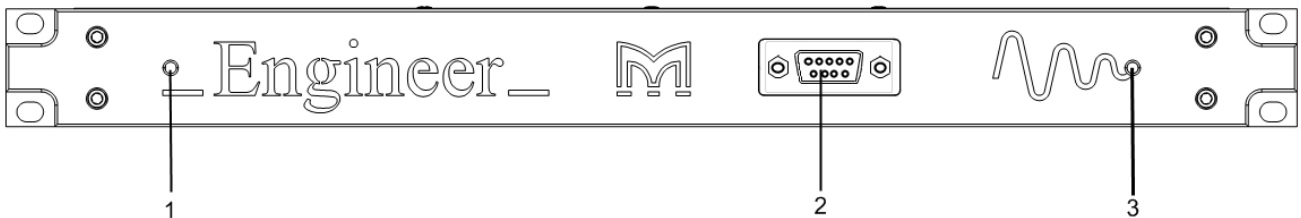
## 3. Chapter 2: Engineer 818

### 3.1 Included Items

In the box containing this manual, the following items should be present:

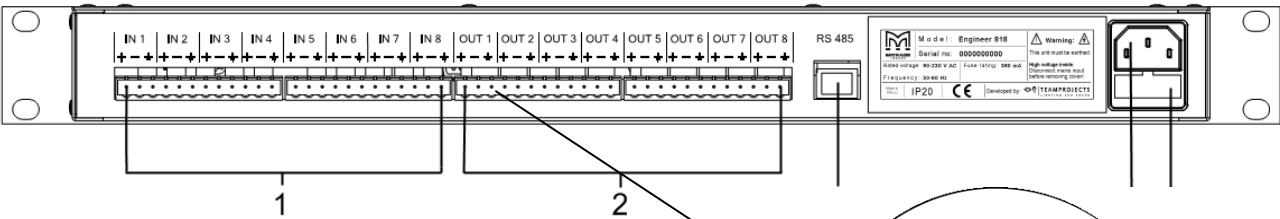
- 1 Martin Audio Ltd. Engineer 818
- 1 Engineer remote panel
- 1 Engineer remote mounting plate
- 1 Engineer front panel cover set w/ 2 screws
- 3 12-pin Phoenix plug-in terminal blocks
- 1 Fully wired 1:1 DB09-DB09 M/F RS232 cable
- 1 Manual (this manual)
- 1 Power lead
- 1 software manual
- 1 CDROM with Windows® software

### 3.2 Front Panel layout




1	Power Switch
2	RS-232 port
3	Power Led

3.3 Rear Panel layout



1	Audio Inputs
2	Audio Outputs
3	RS-485 port (RJ45 connector)
4	Power connector
5	Fuse Holder

+	audio hot
-	audio cold
	audio ground

### 3.4 Installation requirements

The Martin Audio Engineer 818 is designed for 19" rack-mount use.

Mount the Martin Audio Engineer 818 with racking screws in a 19" cabinet. Use support strips as necessary to support the rear of the device.

Adequate ventilation and rear-support must be provided. Allow for enough ventilation into the 19" cabinet in which the Martin Audio Engineer 818 is mounted. Observe the environmental specifications (see appendix 2) at all times.

When mounting the Martin Audio Engineer 818 in a touring rack, a touring rack with shock-absorbing racking strips should always be used.


Always install the Martin Audio Engineer 818 in a level plane. A maximum allowable angle of 10 degrees is acceptable.

**Do not use the Martin Audio Engineer 818 in a wet/damp environment.**

**Do not block any ventilation slot at any time and check the proper function of the fans at regular basis. If the fans do not operate properly, the lifespan of the device will be significantly reduced and the device may even fail.**

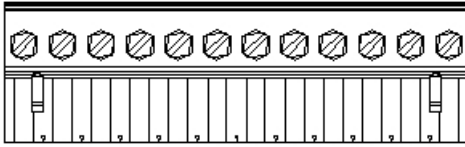
### 3.5 Connecting Audio

Use only certified balanced & shielded audio signal cabling (e.g. Belden 8718, Tasker C208). The connectors on the Martin Audio Engineer 818 accept 12-pin Phoenix terminal blocks (as supplied). From left-to-right are INPUT 1-8 and OUTPUT 1-8. The connections are labelled: (please refer to rear panel layout)

- + For audio hot
- For audio cold
-  For audio ground

**Attention: Martin Audio strongly recommends the use of balanced audio connections only.**

### 3.6 Connection instructions for Phoenix terminal blocks



To connect the Phoenix terminal blocks, always use the following procedure:

- strip the jacket 20mm
- strip the wires 7 mm
- in case of stranded wires, pre tin the wires
- cover the ground wire with a heat shrink sleeving
- put the wire up to the plastic sleeve in the terminal block
- use a small flathead screwdriver to firmly close the contact
- make a strain relief so no strain is on the connection
- for suitable wire thickness, please refer to the table below

<b>Conductor cross section solid min.</b>	0.2 mm <sup>2</sup>
<b>Conductor cross section solid max.</b>	2.5 mm <sup>2</sup>
<b>Conductor cross section stranded min.</b>	0.2 mm <sup>2</sup>
<b>Conductor cross section stranded max.</b>	2.5 mm <sup>2</sup>
<b>Conductor cross section stranded, with ferrule without plastic sleeve min.</b>	0.25 mm <sup>2</sup>
<b>Conductor cross section stranded, with ferrule without plastic sleeve max.</b>	2.5 mm <sup>2</sup>
<b>Conductor cross section stranded, with ferrule with plastic sleeve min.</b>	0.25 mm <sup>2</sup>
<b>Conductor cross section stranded, with ferrule with plastic sleeve max.</b>	2.5 mm <sup>2</sup>

### 3.7 Connecting RS-232

On the front of the device is the RS-232 port for remote control and configuration of the device with a PC with the supplied Windows® Engineer software. To connect the Martin Audio Engineer to a PC use the supplied RS232 cable only. This cable is 1:1 connected, fully wired, one side fitted with a Male DB9 connector, other side a Female DB9 connector.

If a longer cable is required please observe that the maximum operational cable length is typically 45 feet.

**Warning: if the users' PC uses a grounded power supply, make sure that the the Martin Audio Engineer 418 and the PC are on the same power distribution line to avoid data errors.**

### 3.8 Connecting RS-485

On the rear of the device, next to the audio inputs, is the RS-485 port on a RJ-45 connector, used to connect the Martin Audio Engineer 818 to the Martin Audio Engineer Remote or to an external third party control unit. (e.g. Crestron/AMX). (For communication protocol please refer to the Engineer software manual)

The maximum operational cable length is typically 1000 ft. on CAT-5 (Unshielded Twisted Pairs) cable.

The RS-485 connection includes a +5V power line for powering the Engineer Remote. (Please refer to the wiring scheme in the chapter "Engineer Remote".)

**Warning: if an external third party control unit is used with the RS-485 port, this device must have a double isolated power supply.**

### 3.9 Power Requirements

The Martin Audio Engineer 818 must be connected to a 100-240V AC 50-60Hz electrical power supply, with a single phase, neutral and ground connection. Both the neutral and the phase of the power supply (building fuse) need to be protected by a fuse with a maximum current of 16A. For safety reasons the Martin Audio Engineer 818 must be connected to a properly grounded power outlet.

Always use the 3-pin IEC power cord supplied with the Martin Audio Engineer 818.

The power input fuse is located below the 3-pin IEC power input. Do not use a different type of fuse; always replace a blown fuse with a compatible fuse.

### 3.10 Power switch

The Martin Audio Engineer 818 has a power switch which is accessible through the hole in the front panel (please refer to the front panel layout). Although the device is designed to be left on at all times, it is possible to un-power the device with this switch. To switch ON/OFF, use a Philips 1 screwdriver to operate the power switch through the hole.

**Warning: Since the mains power plug can be used as the main disconnection device, care must be taken during installation that this plug is made easily accessible at all times.**

### 3.11 Power LED

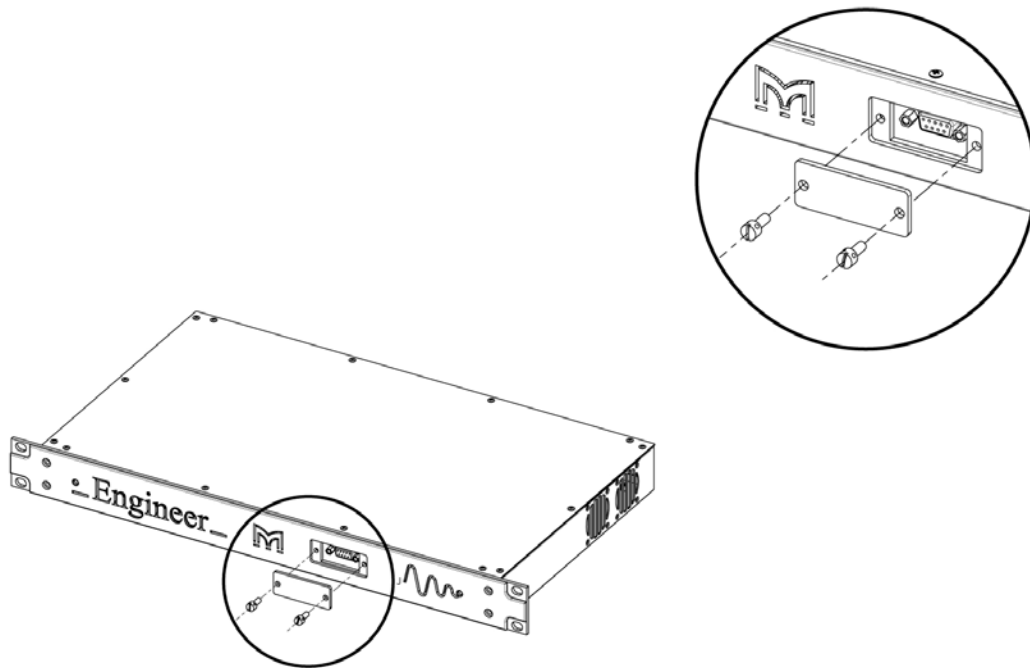
The blue power LED shows the status of the isolated 5V power supply to the digital circuits. When lit, this power supply is active.

Note that the other internal power supply circuits do not have an external or internal status indicator.



### 3.12 RS-232 front panel cover

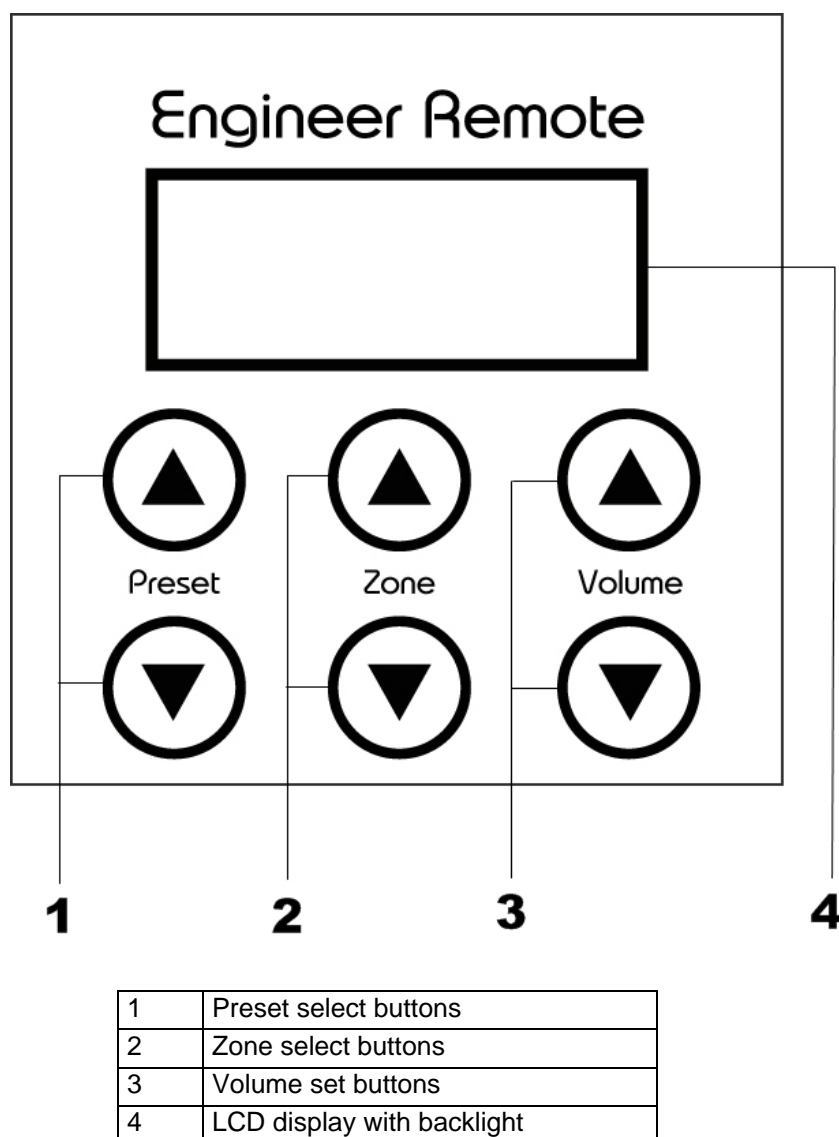
When the RS-232 port on the front of the device is not used, the RS-232 port may be covered with the supplied RS-232 front panel cover. Use the two supplied screws to attach the cover to the front panel. The supplied screws have holes drilled through the heads which may be used to seal the RS-232 port so unwanted operation is prohibited.



## Chapter 4: Engineer Remote

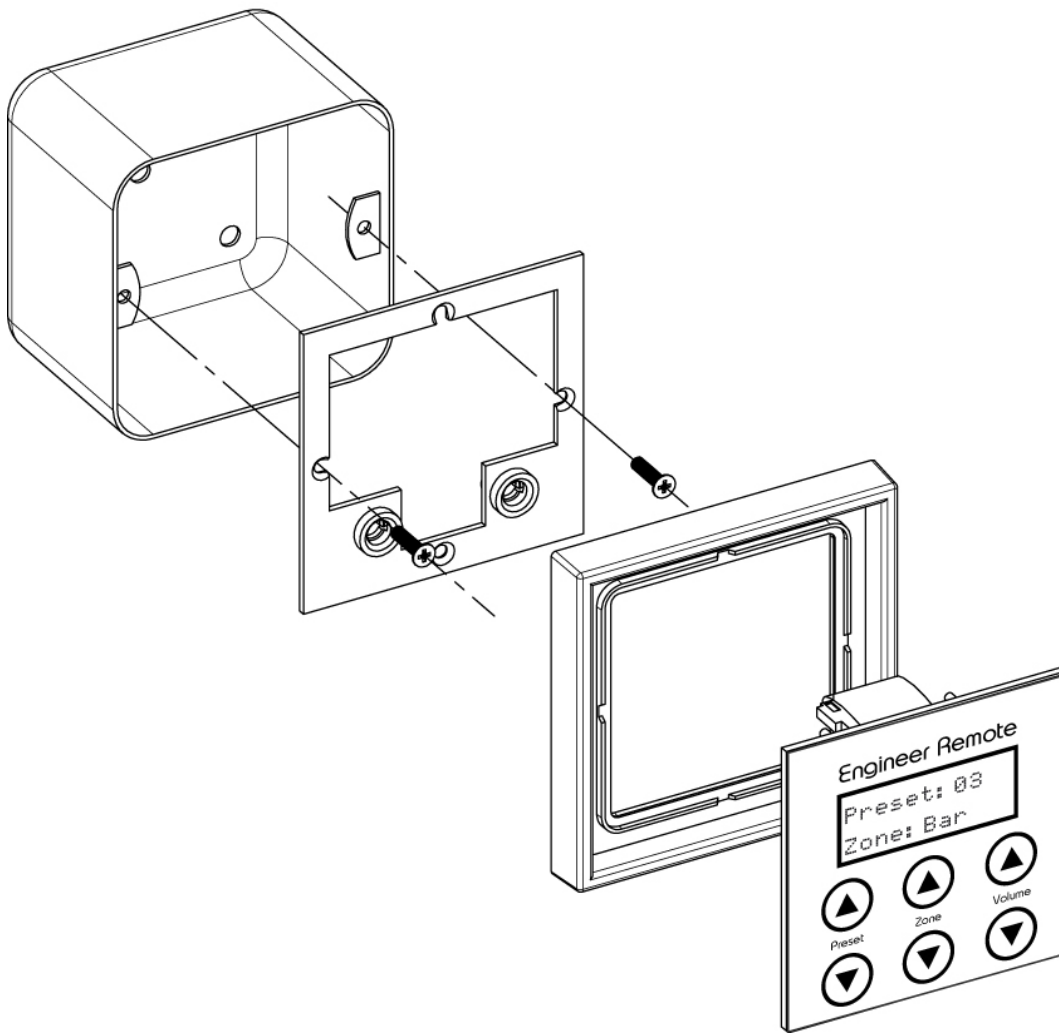
When the user has created zones and presets on the Martin Audio Engineer 418/818 with the supplied Windows® PC software, the Engineer Remote (supplied with the Martin Audio Engineer 418 or Martin Audio Engineer 818) can be used to recall presets and control the volume of the zones on the Martin Audio Engineer 418 or Martin Audio Engineer 818. (For more information please see the software manual.)

### 3.13 Panel layout



### 3.14 Installation

The Martin Audio Engineer Remote panel is to be mounted onto a standard DIN installation box and finish cover. The figure below shows how to install the product into the installation box.



- 1 - Attach the Martin Audio Engineer remote mounting plate to the DIN installation box with two M3 screws (length as required)
- 2 - Connect the CAT5 cable to the header on the Engineer Remote (see: wiring scheme)
- 3 - Push the Engineer Remote onto the mounting plate, with a suitable finish cover in between.

### 3.15 Power

The Engineer Remote is powered from the Martin Audio Engineer 418 or Martin Audio Engineer 818 with a 5 volt DC power supply, incorporated in the RS-485 connector, No external power supply is required.

### 3.16 Wiring

The Engineer Remote is connected through the RS-485 connector on RJ-45 plug on the backside of the device. The maximum operational cable length is typically 1000 ft. on CAT-5 (Unshielded Twisted Pairs) cable. (e.g. Belden 7918a, Tasker C705)

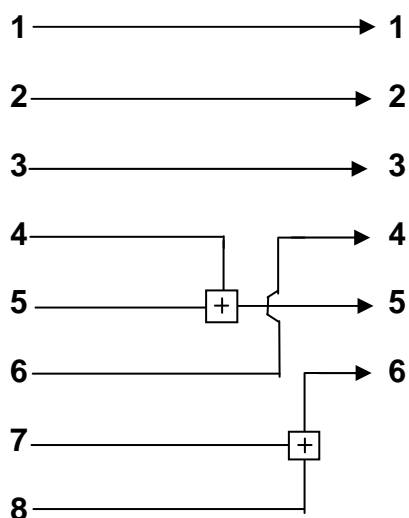
### 3.17 Wiring scheme

Please make sure that the wires are properly connected according to the wiring scheme below:

PIN	FUNCTION	RJ-45 CONNECTOR CABLE PART	REMOTE HEADER
1	DATA OUT +	1 - ORANGE/WHITE	1 -ORANGE/WHITE
2	DATA OUT -	2 - ORANGE	2 -ORANGE
3	DATA IN +	3 - GREEN/WHITE	3 - GREEN/WHITE
4	POWER + 5 Volt	4- BLUE	4 - GREEN
5	POWER + 5 Volt	5 - BLUE/WHITE	5 - BLUE & BLUE/WHITE
6	DATA IN -	6 - GREEN	6 - BROWN & BROWN/WHITE
7	GROUND	7 - BROWN/WHITE	
8	GROUND	8 -BROWN	

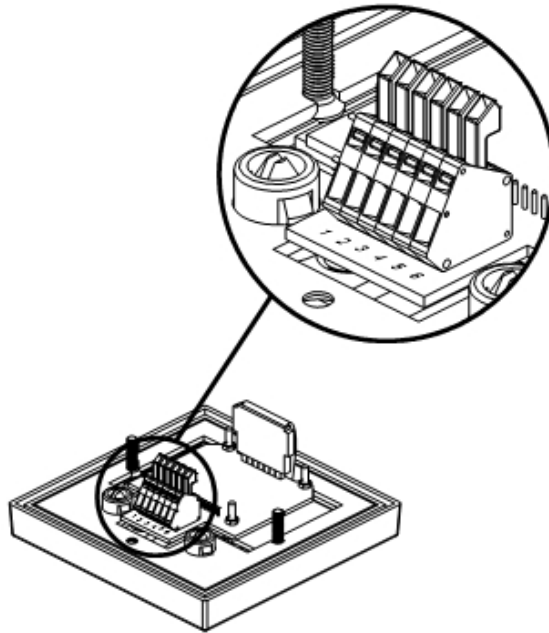
**Warning!:** the color scheme in the above table is just an example with the most used color scheme in CAT-5 cabling, when connecting a remote **DO NOT** only look at the colors, but instead check the pin configuration. **Incorrect connection will cause fatal damage to the remote!**

RJ-45 Cable Part pin      Remote Header pin



### 3.18 Header

The Engineer Remote features a Wago terminal block 6-way header for the connection of the CAT5 cable. To connect the cable to the header, strip the wires 7mm, use a small flathead screwdriver to firmly press down one of the header pins, put the wire in the appropriate header hole and release the screwdriver. Do not press down on two or more header pins at the same time; this may result in damage to the Engineer Remote.



### 3.19 Connecting multiple Engineer Remotes to an Engineer

With the use of the Engineer Remote Spider, it is possible to connect up to 4 Engineer Remotes to one Martin Audio Engineer 418 or Martin Audio Engineer 818. For details please refer to the Martin Audio Engineer Remote Spider manual.

### 3.20 Checking proper connection

If the Engineer Remote is powered by the Martin Audio Engineer, the backlight of the Engineer Remote will be lit.

If the Engineer Remote is properly connected to the Martin Audio Engineer 418 or Martin Audio Engineer 818, and one or more presets have been stored on a Martin Audio Engineer 418 or Martin Audio Engineer 818 with the Engineer Windows® PC software, the display will show the name of the presets stored in the connected Martin Audio Engineer 418 or Martin Audio Engineer 818 when pressing one of the 'Preset' up/down arrows on the Engineer Remote.

For further details please refer to the software manual.

### 3.21 Recalling presets

To recall a preset from the Martin Audio Engineer Remote, just press the 'Preset' up or down button, the display will show 'selecting' and the name of the preset. After 3 seconds the currently selected preset is recalled. Refer to the software manual for creating and assigning presets.

### 3.22 Changing volumes

To change the volume of a zone, just press one off the 'Zone' up or down buttons. The display will show the zones that have been created in the Engineer Windows® PC software and the MASTER volume. Once the correct zone is selected, the volume is changed through the 'Volume' up and down arrows. Refer to the software manual for creating and assigning zones.

**ATTENTION: To use the Engineer Remote, DISCONNECT THE PC from the Martin Audio Engineer 418 or Martin Audio Engineer 818 If the Engineer Remote and the PC are connected at the same time, only the connection between the PC and the Martin Audio Engineer 418 or Martin Audio 818 will be active.**

## 4. Chapter 5: Troubleshooting

### 4.1 Power

***If a Martin Audio Engineer 418 or Martin Audio Engineer 818 shows no power***

- Check the Engineer 418/818's power switch
- Check that the power source is functional, and ground, neutral and live connections are properly seated
- Check the power lead for damage
- Check the Engineer 418/818's fuse
- If the Engineer 418/818 still shows no power, contact your local Martin Audio Ltd. service point

### 4.2 Data

***If the Engineer PC software can't open a connection with the Martin Audio Engineer 418 or Martin Audio Engineer 818***

- Check that the Engineer 418/818 is powered
- Check if the RS232 is properly seated at both ends.
- Check if the right COM-port is selected in the Engineer software (usually COM1)
- Check if no other programs are using the PC's COM port
- Switch the Engineer 418/818 off for 15 seconds and switch it back on again
- Restart the Engineer software
- Restart the PC running the Engineer software
- If the Engineer PC software still can't get a connection with the Martin Audio Engineer 418 or Martin Audio Engineer 818, contact your local Martin Audio Ltd. service point

### 4.3 Remote

***If the Engineer Remote doesn't connect to the Martin Audio Engineer 418 or Martin Audio Engineer 818***

- Check that the Martin Audio Engineer 418 or Martin Audio Engineer 818 is powered
- Check if zones and presets have been properly stored in the Engineer software (see software manual)
- Switch the Martin Audio Engineer 418 or Martin Audio Engineer 818 off for 15 seconds and switch it back on again
- Check If the RJ-45 connector on the back of the Martin Audio Engineer 418 or Martin Audio Engineer 818 is properly wired (see Remote wiring Scheme)
- Check If Engineer Remote is properly wired (see Remote wiring Scheme)
- If the Engineer Remote still can't get a connection with the Martin Audio Engineer 418 or Martin Audio Engineer 818, contact your local Martin Audio Ltd. service point



## 4.4 Audio

### ***If no audio signal is entering the Martin Audio Engineer 418 or Martin Audio Engineer 818***

- Check that the Martin Audio Engineer 418 or Martin Audio Engineer 818 is powered
- Check if you are actually sending audio to the Martin Audio Engineer 418 or Martin Audio Engineer 818 by checking the input meters in the Engineer PC software (see the software manual)
- Check if all the gains, mutes and routing settings are set correctly in the Engineer PC software (see the software manual)
- Check the proper connection of your audio cabling to the Phoenix terminal blocks (see Connecting audio)
- Switch the Martin Audio Engineer 418 or Martin Audio Engineer 818 off for 15 seconds and switch it back on again
- If still no audio signal is entering the Martin Audio Engineer 418 or Martin Audio Engineer 818, contact your local Martin Audio Ltd. service point

### ***If the Martin Audio Engineer 418 or Martin Audio Engineer 818 doesn't send audio out its outputs***

- Check that the Martin Audio Engineer 418 or Martin Audio Engineer 818 is powered
- Check if you are actually sending audio to the Martin Audio Engineer 418 or Martin Audio Engineer 818 outputs by checking the output meters in the Engineer PC software (see the software manual)
- Check if all the gains, mutes and routing settings are set correctly in the Engineer PC software (see the software manual)
- Check the proper connection of your audio cabling to the Phoenix terminal blocks (see Connecting audio)
- Switch the Martin Audio Engineer 418 or Martin Audio Engineer 818 off for 5 seconds and switch it back on again
- If still no audio signal is coming out off the Martin Audio Engineer 418 or Martin Audio Engineer 818, contact your local Martin Audio Ltd. service point

## 5. Appendix 1: Maintenance

### 5.1 Housing

Clean the exterior housing with a slightly moist, lint free cloth.

**Do not use abrasive cleaning agents.**

If a product is used in a dusty environment (or in combination with smoke-machine oil) regular cleaning of the internal fan by qualified personnel may be required.

### 5.2 Servicing

**Do not open this unit.**

Doing so will void warranty and might present a risk. Servicing must be performed by qualified personnel only. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug being damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Always contact your local Martin Audio Ltd. dealer for instructions to obtain service.

## 6. Appendix 2: Engineer 418/818 Specifications

### Mechanical

Size (physical), WxHxD	-	(W) 483mm x (H) 44mm x (D) 251mm (W) 19inch (H) 1.75 inch (D) 9.89inch
Weight (physical) (NS12P)	-	3.35 kg. (4.35 kg. Shipping)
Ingress protection rating	-	IP20

### Electrical

Input voltage, frequency	-	100-240V AC 50-60Hz
Power rating	-	30 Watt
Fuse	-	630 mA SlowBlow, 20 x 5mm
Internal battery	-	5,5V goldcapp

### Environmental specifications

Operational Temperature	-	0-45 deg. C
Storage Temperature	-	-10 – +60 deg. C
Humidity	-	10-90% (non condensing)
Operational Altitude	-	2400m max
Storage Altitude	-	6000m max

### Connections

INPUTS	-	12-pin Phoenix plug-in terminal block
OUTPUTS	-	12-pin Phoenix plug-in terminal block
RS-232	-	9-pin DB9-F connector
RS-485	-	RJ-45 connector
POWER	-	3-pin IEC power plug

### Audio

INPUTS	-	electronically balanced
IMPEDANCE	-	> 25k ohms

CMRR	-	> 70dB 20Hz-20kHz
OUTPUTS	-	electronically balanced
SOURCE IMP.	-	< 60 ohms
MIN. LOAD	-	600 ohm
MAX. LEVEL	-	+20dBu
FREQUENCY RESP.	-	+/- 0.1dB 8Hz – 20 kHz
A/D DYNAMIC RANGE	-	> 115dB Unweighted
D/A DYNAMIC RANGE	-	> 112dB Unweighted
IN-OUT DYNAMIC RANGE	-	> 110dB Unweighted
DISTORTION	-	0.0035% @1kHz 0dBu
MAXIMUM DELAY	-	10ms. /output (increment 2 microseconds.)

### Processing

AD/DA resolution	-	24 bits
AD/DA sample rate	-	48 kHz
Internal processing resolution	-	32 bits floating point

## Software

OUTPUT GAIN	-	adjustable +12dB to –inf.dB in 0.25dB steps
INPUT GAIN	-	adjustable +12dB to –inf.dB in 0.25dB steps

## PARAMETRIC EQUALISATION

FILTERS	-	8 sections per input, 8 sections per output
FILTER TYPES	-	Bell, Lowshelf, Highshelf, Notch, Bandpass
FILTERGAIN	-	+12dB to –45dB in 0.25dB steps
FILTER Q/BW	-	User selectable 0.05 to 20 / 20 to 0.05
FREQUENCY	-	20Hz – 20kHz

## HIGH-AND LOWPASS FILTERS

FILTERS	-	One of each per output
FREQUENCY	-	20Hz – 20 kHz
RESPONSE	-	Bessel, Butterworth, Linkwitz-Riley 12/18/24 dB/oct

## LIMITERS

LIMITERS THRESH.	-	+20dBU to –43 dBU
ATTACK TIME	-	½, ¼, 1/6, 1/8 times the release time
RELEASE TIME	-	49ms to 2000ms

## BASSCREATOR ALGORITHM

PLACEMENT	-	freely insert-able on any output
FREQUENCY RANGE	-	virtual 30Hz to 120Hz
PARAMETERS	-	drive, mix level

## ENGINEER ALGORITHM

- PLACEMENT - freely insert-able on any input
- OPERATING RANGE - -45dB to +22 Db

## PRESETS

- PRESET TYPES - system, routing, noise emission, engineer
- PRESET NUMBER - 30 user-accessible presets

## SECURITY

- LEVELS - 3 security levels with user assignable passwords
- STORAGE - security settings are stored within the device