



I081R

Standalone Mic Pre Amps

User Guide

527-323
Issue 2

© 2003 AMS Neve plc own the copyright of all information and drawings contained in this manual which are not to be copied or reproduced by any means or disclosed in part or whole to any third party without written permission.

As part of our policy of continual product improvement, we reserve the right to alter specifications without notice but with due regard to all current legislation.

Disclaimer: The information in this manual has been carefully checked and is believed to be accurate at the time of publication. However, no responsibility is taken by us for inaccuracies, errors or omissions nor any liability assumed for any loss or damage resulting either directly or indirectly from use of the information contained within it.

HEAD OFFICE

AMS NEVE PLC • BILLINGTON ROAD • BURNLEY
LANCS BB11 5UB • ENGLAND
TELEPHONE: +44 (0) 1282 457011 • FAX: +44 (0) 1282 417282

LONDON OFFICE

TELEPHONE: +44 (0) 20 7916 2828 • FAX: +44 (0) 20 7916 2827

NORTH AMERICAN OFFICES

AMS NEVE INC., NEW YORK
TEL: +1 (212) 965 1400 • FAX: +1 (212) 965 9306
AMS NEVE INC., HOLLYWOOD
TEL: +1 (818) 753 8789 • FAX: +1 (818) 623 4839

e-mail: enquiry@ams-neve.com
<http://www.ams-neve.com>

Contents

Introduction	1
Dimensions	2
Power Requirements	2
Connector Information	3
Module Controls	7
Computer Control (optional)	8
Specifications	10

Introduction

The growing demand for high class 'front end' Mic pre-amplifiers has led to the release of the Neve 1081R standalone Microphone Rack providing the classic Neve microphone amplifier sound for any of AMS Neve's consoles.

The microphone amplifiers may be controlled from their front panels or optionally, from a console-side computer running AMS Neve's Graphical Control Software. The computer offers the added benefit of a recall system for the Mic amp settings.

The Mic amp circuitry is very close to the classic '1081' design of the early 1970s using the same transformer, capacitor types and other components wherever possible. The modules provide transformer balanced XLR Mic inputs to balanced line outputs via a multiway varicon connector on the rear of the rack.



Twelve modules can be fitted into the 4U rack housing. Each rack is also fitted with an intelligent control processor module and power supply.

Dimensions

19" Rack Mounting	U	Depth mm (inches)	Height mm (inches)	Approx. Weight kg (lbs)
Mic-Line Rack	4	265 (10½)	178 (7)	21 (46) *

* Fully populated rack

Power Requirements

Rated Voltage	100-240V AC
Rated Frequency	50-60 Hz
Rated Current	0.5A Max
Earth Leakage Current	Approx 1.2mA
Warning for High Earth Leakage Current Required	NO
Primary Protection Fuse:	
Operating Voltage	100-240V AC
Fuse Rating and Type	T1.6A H 250V 20mm x 5mm CERAMIC
Location	IEC Mains connector
Secondary Protection Fuse:	
Output Voltage	5V DC
Fuse Rating and Type	T 3.15A L 250V 20mm x 5mm GLASS
Location	FU1 on Processor

Mains Power

The power supply unit is a universal input type therefore no mains operating voltage setting is required.

The CH (chassis) and 0V Link is permanently connected internally for stability.

Mains Fuse

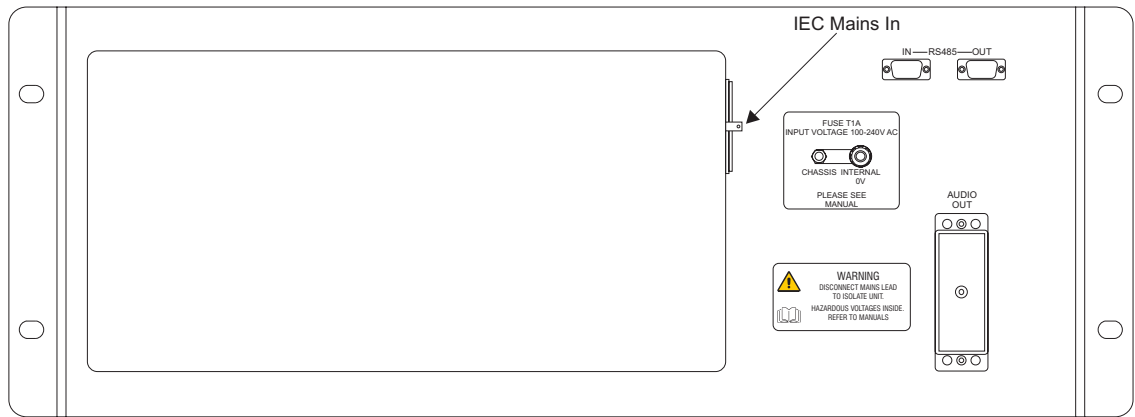
The mains fuse is located in the IEC mains input connector on the rear of the unit.

Hot-Plugging

AMS Neve are not aware of any instances of hot-plugging modules causing a failure, however this procedure is not recommended. The fuse for the 5V rails are located on the processor board, so removing and replacing this module will automatically force a power-up restart.

Connector Information

Rear connectors are a 56 way Varicon connector for line outs and a pair of 9 pin D-type connectors for RS485 and a fused mains IEC socket.



On the front is a standard 3 pin female XLR Mic input per module.

RS485 Input/Output Connector (for optional Remote Control Software)

The "remote" functionality is provided by a PC equipped with a RS485 interface. Most PC's are fitted with RS232 interfaces as standard and will therefore need to use the RS232-485 convertor (manufactured by K2 systems) supplied by AMS Neve.

Encore users already have such a port built into the E for V card. The port will be used in multidrop mode with rack addressing facilitated by dip switches on each rack controller board.

The K2 to 1081R rack cable is not wired one-to-one, it is wired with a 9 pin D-type male connector at both ends. **It is important that the cable is installed the right way round, one end will be labelled 'Mic Rack' the other end 'Convertor'.**

K2 to 1081R rack cable pin-outs:

Signal Name	Rack (male)	K2 (male)
Data -	1	3
Data +	6	8
Ground/Screen	7	1

The switch settings for the supplied K2 convertor are as follows:

SW1	ON	RS485
SW2	ON	Always Receive
SW3	OFF	Transmitter controlled by RTS
SW4	OFF	RTS Control
SW5	OFF	RTS Control
SW6	OFF	RTS Control

The Encore to 1081R rack cable will be wired with a 9 pin D-type female at the Encore end and a 9 pin D-type male at the 1081R rack end.

Encore to 1081R rack cable pin-outs:

Signal Name	Rack (male)	Encore (female)
Data -	1	1
Data +	6	6
Ground/Screen	7	7

Comms Extension Cables

The 1081R rack RS485 Input and Output connectors are wired in parallel with the exception of the ground.

The Input connector is a 9 pin D-type female while the Output connector is a 9 pin D-type male. This is to allow the connectors to be joined together in the event of a rack needing to be removed from the 'daisy-chain'.

The ground pin on the Input connector is not a direct connection to ground to prevent ground loops.

Care should also be taken when selecting which cable is to be used for communications, especially for long (20m+) runs as marginal cable can cause intermittent problems which can prove difficult to troubleshoot.

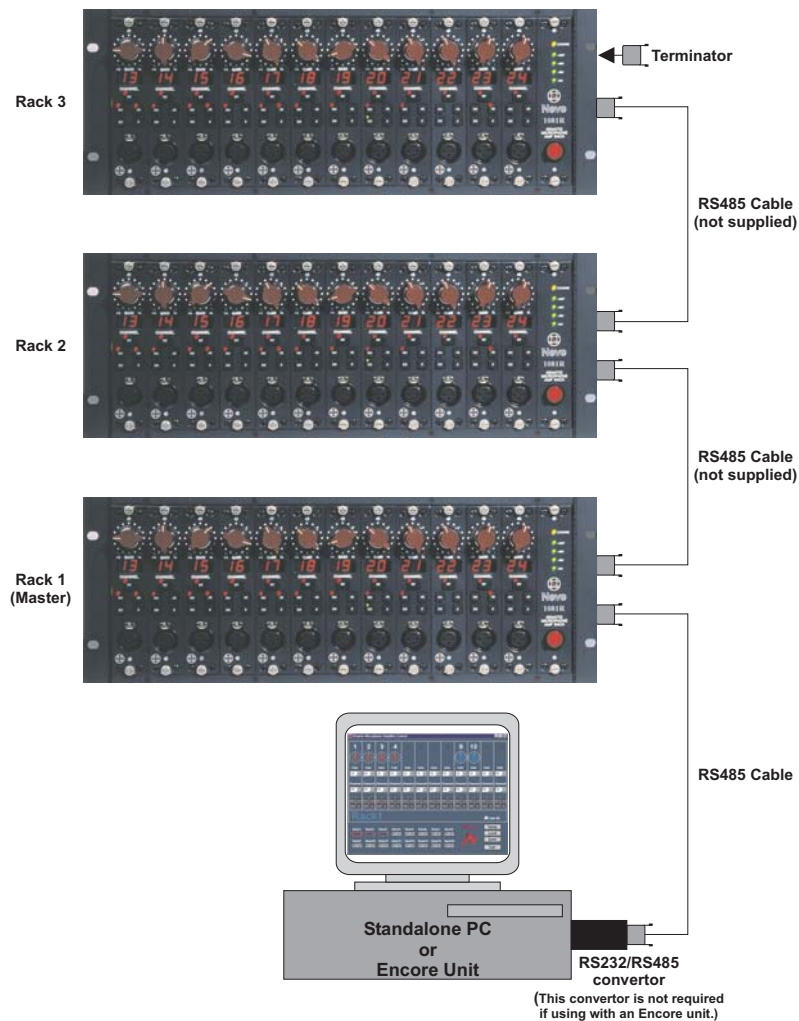
The RS-422 specification recommends 24AWG twisted pair with a shunt capacitance of 16pF per foot and a 100 ohm characteristic impedance.

It can be difficult to determine whether shielding is required until problems arise, so we recommend using shielded cable. A good choice is Ethernet cable, commonly called Category 5 cable. This is defined by the EIA/TIA/ANSI 568 specification, has a maximum capacitance of 17pF per foot and a characteristic impedance of 100 ohms. It is available as either Shielded Twisted Pair (STP) or Unshielded Twisted Pair (UTP) and generally exceeds the recommendations for RS-422 protocol.

The racks can be "daisy chained" to provide up to 192 remote controllable Mic amps. This is achieved using a maximum of 16 racks daisy chained, each with the full 12 module slots populated.

The terminator is a 120Ω resistor across pins 1 & 6 of a 9 pin female D-type, and is supplied ready built with a Remote Mic-Line Rack system.

Remote Mic Rack Control Connection Example



Audio Output Connector

Signal	Signal Name	Pin Number		
		Hi	Lo	Scn
1	Output 1	C	J	D
2	Output 2	P	V	K
3	Output 3	U	Z	d
4	Output 4	Y	c	f
5	Output 5	s	m	j
6	Output 6	x	t	n
7	Output 7	CC	y	JJ
8	Output 8	MM	HH	NN
9	Output 9	B	F	A
10	Output 10	L	R	E
11	Output 11	S	W	a
12	Output 12	X	b	e
13		r	L	h
14		v	p	k
15		z	u	DD
16		LL	EE	KK

Module Controls



The modules can be controlled from their front panels, or from a remote PC using the optional Remote Mic Amp Software.

By default all modules power up with all functions locally controllable and settings are retained on power down.

Front panel control of the Mic amplifiers allows the amplifiers to be set up from the studio floor and also allows a method of control if for any reason the control computer system should fail. The rack will normally power up in this mode and will also revert to this mode if the serial control from the computer is lost.

Front panel control is available if the 48V, pad and phase control switch LEDs are green. If the LEDs are red, the Mic amp is not controllable from the front panel, but from the console controls (88R only).

Turning the switched gain control will vary the gain as shown in the display beneath, but the gain is not related to the actual position of the knob, which is of the infinitely rotatable kind. The range of control is from +20 to +70dB in 5dB steps.

Next to the gain control are two LEDs that indicate signal presence (at approximately -30dBu or greater) and signal overload (at 2dB below clipping). Note that an overload in the remote Mic amplifier is not shown on the console channel module directly. For best performance, the line input trim on the channel module should be set to zero. This will ensure that any channel module overload LED will come on at the same time as the Mic amplifier overload indicator. If the input trim on the channel module is turned down, there is a danger that the Mic amplifier will overload without an overload being indicated on the channel module.

The 48V, phase and -20 switches control the phantom power, phase and pad functions respectively. The DIR button is a relay bypass that connects the front panel XLR directly to the rear panel Varicon and hence to the console patch without going through the remote Mic amp's audio electronics. This allows the Mic to be used even if there is a complete failure of the remote rack.

The Line In option uses the DIR button to switch from transformer balanced microphone input to electronically balanced Line Input.

Computer Control (optional)

The optional Remote Mic Amp Software is installed from the CD-ROM by running **RemoteMicSetup.exe**.

After installation the software can be launched from the Windows Start Menu under 'AMS Neve Remote Mic Controller'.

The control program automatically detects the presence of connected Mic amp racks and will display the number and position of all detected modules within the selected rack. The screen will be updated with any changes made through the modules' front panels.

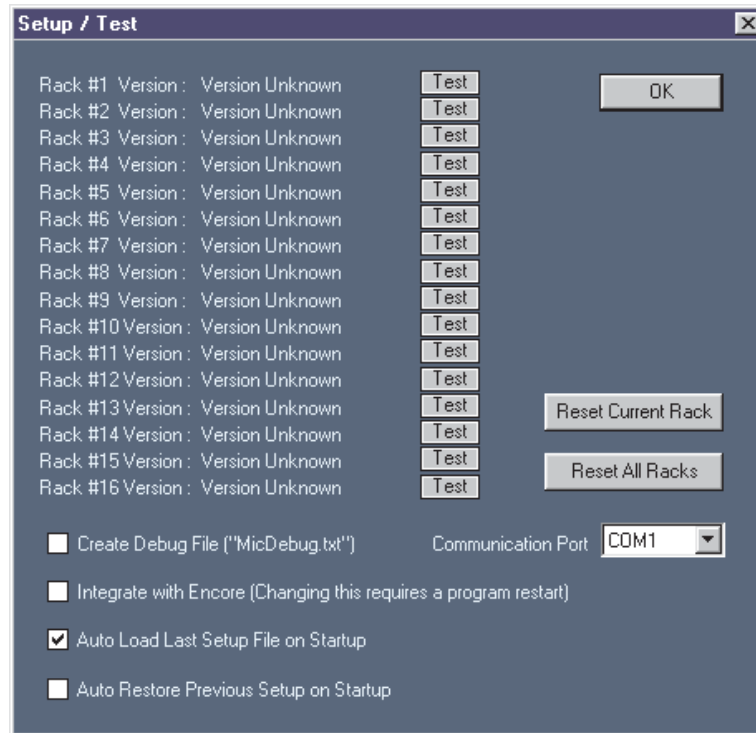


The screen is also used to remotely control the mic amps. The Gain can be set by selection from the drop-down settings list. The phantom power, pad, phase and bypass (DIR) settings can be toggled by clicking on the appropriate button.

The icons at the bottom of the screen indicate how many remote racks are connected. The rack indicated by the red outline is the one currently being controlled from the upper part of the screen.

The Mic amp settings can be saved and recalled independently of the console's recall system using the save and load buttons that launch conventional Windows dialogues.

Software Set-Up



From the Setup page, the comms port that the serial cable is plugged into can be set. This is normally COM2 as the mouse is on COM1. If set to the wrong port, the software will probably fail to find the RS485 adaptor (dongle) and will report an error.

The link to each rack can be tested with the test buttons, which simply cause the yellow comms indicator on the front panel of the remote rack processor module to flash off briefly. This is useful for checking that each rack has been set to its own unique address - i.e. that only one rack's LED flashes.

The rack addresses are set by sixteen DIP switches on the remote rack processor module. Each processor module in each rack connected to an Encore system has to have one switch set on and it has to be a different switch in each rack. For example, switch 1 on the rack 1 processor card, switch 2 in rack 2, switch 3 in rack 3 etc. In normal operation the comms indicator will be pulsing so fast as to appear constantly lit.

Resetting a rack, or all the racks from the Setup page, will clear the control settings back to their default values. This action is performed when the Setup page is subsequently exited, not when the button is clicked.

The 'Create de-bug file' check box is for R&D and Service use only.

Setting the 'Auto Load' option on will cause the last saved or loaded system setup to be reloaded when the software is next started. This option is interlocked with the 'Auto Restore Previous Setup on Startup' option, which will restore the settings of the rack as they were when the system was powered down.

Specifications

Microphone Module Specifications and Description

1081R Microphone Input: XLR inputs, Z_{in} 1Kohm @ 1kHz, gain +20 to +70 in 5dB steps.

Microphone Maximum Input Level, with 'pad' in: +24dB.

1081R Outputs : Max +26dB into 600 ohms. Z_{out} 50 ohms +/-5% @ 1kHz, balanced.

1081R Distortion: Not more than 0.07% for 20dBm output from 50Hz to 10kHz @ 60dB gain.

1081R Microphone EIN: > -123dBm 20Hz to 20kHz @ 60dB gain.

Mechanical: 35mm x 158mm.

Optional Mic/Line input Modules Specification and Description

There are optional variants of the above modules which allow a line input to be switched into the circuit allowing complete low impedance, line level feed from the rack to the console.

Line Input: Z_{in} 50k ohm, unity gain, electronically balanced.

Rack Housing Specifications (fully fitted)

Power: <40w, 100-240v auto sensing, 47-63Hz, 1.6A Anti Surge Fuse.

Mechanical: 4U x 19" 260mm deep.

Audio Interface: 12 balanced circuits on a 56 way panel mounted female Varicon.

Control Interface: 2 x 9 Pin D Type 'Male' input and 'Female' output, RS485 format (adaptors required for serial RS232).