RoHS 2002/95/EC

COMMUNICATION TECHNOLOGY

A Division of SCARECROW BIO-ACOUSTIC SYSTEMS LIMITED

DESK PAGING MICROPHONES DPM 102/B AND DPM 202/B: INSTALLATION AND FACILITIES GUIDE

Thank you for buying this paging microphone. Please ensure that the BATCH REFERENCE in the top right hand corner of this page is quoted in all communications; it can be found on each microphone carton.

PRO-SERIES desk paging microphones type DPM102/B and DPM202B incorporate a range of advanced specification features to accommodate the modern requirements of high intelligibility sound systems. The standard specification includes:

1. Pre-announcement 'gong'; switch selectable, this enables individual paging microphones within a system to prelude announcements with a simple, but attention getting, gong sound.
2. Paging sound level indicator, comprising a VU scaled composite 3 l.e.d. array. This facility will provide reassurance to the announcer of correct use by displaying optimum sound levels and overload. Combined with the benefits of automatic proximity bass cut and sound level limiting, announcements will always be more clearly heard.
3. Microphone developed in the UK by Communication Technology incorporates a speech blast screen and computer designed isolated acoustic chamber for the microphone capsule, to reduce handling noise.
4. Provision for plug-in automatic background noise level reduction, digital sound processing (D.S.P.) technology: when incorporated, DSP virtually eliminates background noise, even equal to that of the intended paging announcement, providing superior results to those of noise cancelling microphones. Noise reductions of up to 30dB can be achieved.
5. 'Soft gate'; noise free, microphone audio activation and closure.
6. PRESS TO TALK button/s protected against accidental use.
7. 'Speak now', or 'System in use', l.e.d/s.
8. Electronic or VOX access receptive, to match host amplifier facilities.
9. Provision for local or remote powering for the internal processor electronics.
10. Long line, 0dBm 600R, output, optionally available at 'microphone' level by on-board switch selection.

PO Box 66, Uckfield, East Sussex, TN22 3ZR, England
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E-mail: sales@communication-technology.co.uk Website: www.communication-technology.co.uk

REGISTERED IN ENGLAND NO. 01568506 VAT REGISTRATION NO. GB680 0269 46
REGISTERED OFFICE: 8 LONSDALE GARDENS, TUNBRIDGE WELLS, TN1 1NU

11. 15 way 'D' interface for easy system integration and facility selection. A 1.8m lead is supplied, free-end unterminated, stripped and tinned, for fitting an installation interface appropriate to the facilities required.

12. Elegant, basalt grey, top, satin silver base; anti-slip feet – no sliding off desks!

13. The standard capsule is moving coil (see technical specification); electret and noise–cancelling microphone capsule options to special order.

BRIEF TECHNICAL INFORMATION

FREQUENCY RESPONSE:

Pre-amplified: Unlimited : ±3dB 100Hz to 8KHz
: bass cut on limit : variable with voice proximity to –18dB @ 100Hz
: proximity level limiting : maximum 26Db

Output level **:** switchable 0dBm, 600 R source, or -20dBm, 60 R source

Powering **:** 24V dc; from host amplifier or plug-top power supply @ 100mA max when using DSP 350.

ORDER CODES

DPM 102/B	Single zone with 600R line pre-amplifier with proximity auto bass cut and limiter
DPM 202/B	Single zone with 600R line pre-amplifier with proximity auto bass cut and limiter
DSP 350	Digital signal processor; increases the difference between unwanted background noise and speech announcements, even where this noise is at the same level as the announcement; plugs into DPM 102/202, preset noise attenuation of up to 30dB

SETTING TO WORK : DPM 102/B and DPM 202/B

CONNECTIONS TO HOST AMPLIFIER

SINGLE & TWO ZONE ACCESS INFORMATION APPLIES TO ALL VERSIONS.

PIN NUMBERS REFER TO THE 15 WAY 'D' CONNECTOR INTERFACE; COLOURS REFER TO THE 'D' CABLE SUPPLIED

SINGLE ZONE

(SHORTED WHEN ZONE 1 PTT OPERATES)	ACCESS/SWITCH PAIR	5 GREEN 10 BLACK

SECOND ZONE

(SHORTED WHEN ZONE 2 PTT OPERATES)	ACCESS/SWITCH PAIR	5 GREEN 2 RED

NOTE: 5 GREEN IS COMMON TO BOTH ZONES AND CAN BE LINKED TO 7 PURPLE TO PROVIDE 'GROUNDED' ACCESS. TWO ZONE SYSTEMS OPERATE WITH OTHER SYSTEM ELECTRONICS.

eg. COMMUNICATION TECHNOLOGY ZRU 102 ZONE RELAY SELECTOR.

3. BUSY LED

(24v SUPPLY REQUIRED FROM HOST SYSTEM WHEN MIC INPUT ACCESSED)

	COMMON POSITIVE	6 BLUE
SINGLE ZONE	BUSY LED	3 ORANGE
SECOND ZONE	BUSY LED	14 GREEN/BLACK

AUDIO OUTPUT

The nominal output is factory set to be 700mV. This allows the microphone to be at a greater distance from the host Amplifier without picking up external interference from other circuits as would be the case at normal microphone, non-preamplified, signal levels.

Make sure that your host Amplifier MICROPHONE input is set for **LINE** level and **NOT** MICROPHONE level sensitivity.

Without this pre-requisite, excessive noise levels will be present at the Amplifier to which this microphone is connected, speech signals will suffer high levels of distortion; any VOX circuitry may also be activated in this incorrect arrangement, overriding music signals, leaving the microphone circuits having access to the system at all times.

If in doubt contact the supplier of your system amplifier for technical assistance.

POWERING THE PRE-AMPLIFIER

This can be accomplished in two alternative ways:

a) **by use of a local plug-in power supply or PSU 24V**
b) **by independent powering from the host system**

INDEPENDENT REMOTE POWERING FROM HOST SYSTEM

POSITIVE 24V +	:	9 WHITE
NEGATIVE, 0V -	:	1 BROWN

LOCAL POWERING FROM 'PLUG TOP' POWER SUPPLY

PLUG PSU 24V into the 2.5mm socket at the rear of the desk base.

LINE LEVEL PREAMPLIFIER OUTPUT 4 YELLOW
12 WHITE/BLACK

This is a 'floating' output arrangement. Please ask **Communication Technology** engineers if a balanced configuration is required.

THE FOLLOWING INSTALLATION SPECIFIC ADJUSTMENTS REQUIRE ACCESS TO THE INBUILT P.C.B; REMOVE THE BASE FIXING SCREWS (4) FOR THIS ACCESS:-

LINE OUTPUT ADJUSTMENT

Refer to the board layout. A two-way switch SW1 allows for selection of 600R line level output (LINE), nominal 700mV, or microphone level, (MIC) 80mV, 60R. Choice is often related to length of cable from microphone to system.

The preamplifier incorporates two features to enhance speech intelligibility: an automatic bass cut and speech level limiter. Both of these function as the microphone user gets close to the microphone head.

The natural characteristics of a moving coil microphone give the impression of bass accentuation when the user is too close; the automatic bass cut circuit offsets this. When used close, the preamplifier output level would increase and perhaps overload the connected system; this is offset by the speech level limiter.

The overall output level and the point where the above features become operational can be adjusted by on-board **VR3** (INPUT SENS).

VU DISPLAY

In some environments and with some operators of the paging microphone it could be necessary to adjust the sensitivity of the 3 l.e.d. VU display. Rotating **VR4**, LED CAL, clockwise will increase sensitivity, anticlockwise reducing sensitivity.

GONG FUNCTION

Ex-factory this facility is already enabled; to switch off select SW2 to 'off'.

Adjust **VR2** CHIME LEVEL to set a gong sound level relevant to and balanced with normal speech levels.

Do not adjust VR1 which is FACTORY SET for gong frequency

BACKGROUND AMBIENT NOISE REDUCTION: DSP 350

Pro-Range single and two-zone desk paging microphones, DPM 102/B and DPM 202B, incorporate the 'plug-in' facility for ***NEW*** Digital Signal Processing (DSP) technology to remove unwanted background noise from speech, enabling announcements to be more easily understood.

A technique called "spectral diffusion" is used to avoid the phenomenon of "musical tones" that can be experienced with many other DSP technologies. The technology is self-adapting to changing noise environments, no 'training' of the noise filter is required.

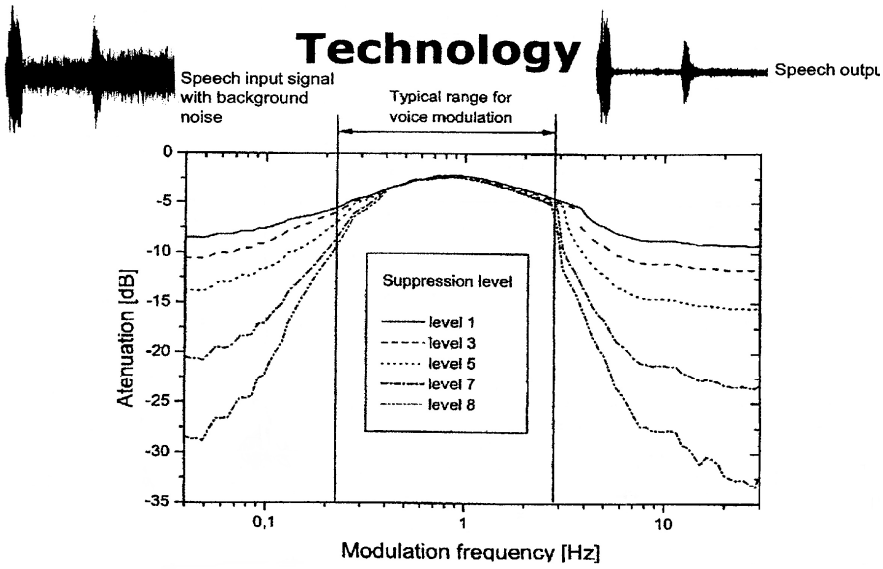
Installers can adjust the level of noise suppression to system requirements; the residual background noise still sounds natural, but up to 30 dB lower.

For most suppression settings there is virtually no distortion of the speech signal, even for signal-to-noise ratios of 0 dB and worse.

INSTALLING DSP 350

DSP 350 comprises a small plug-in printed circuit board, loaded onto the DPM circuit board using the four plastic pillars which simply push-in place.

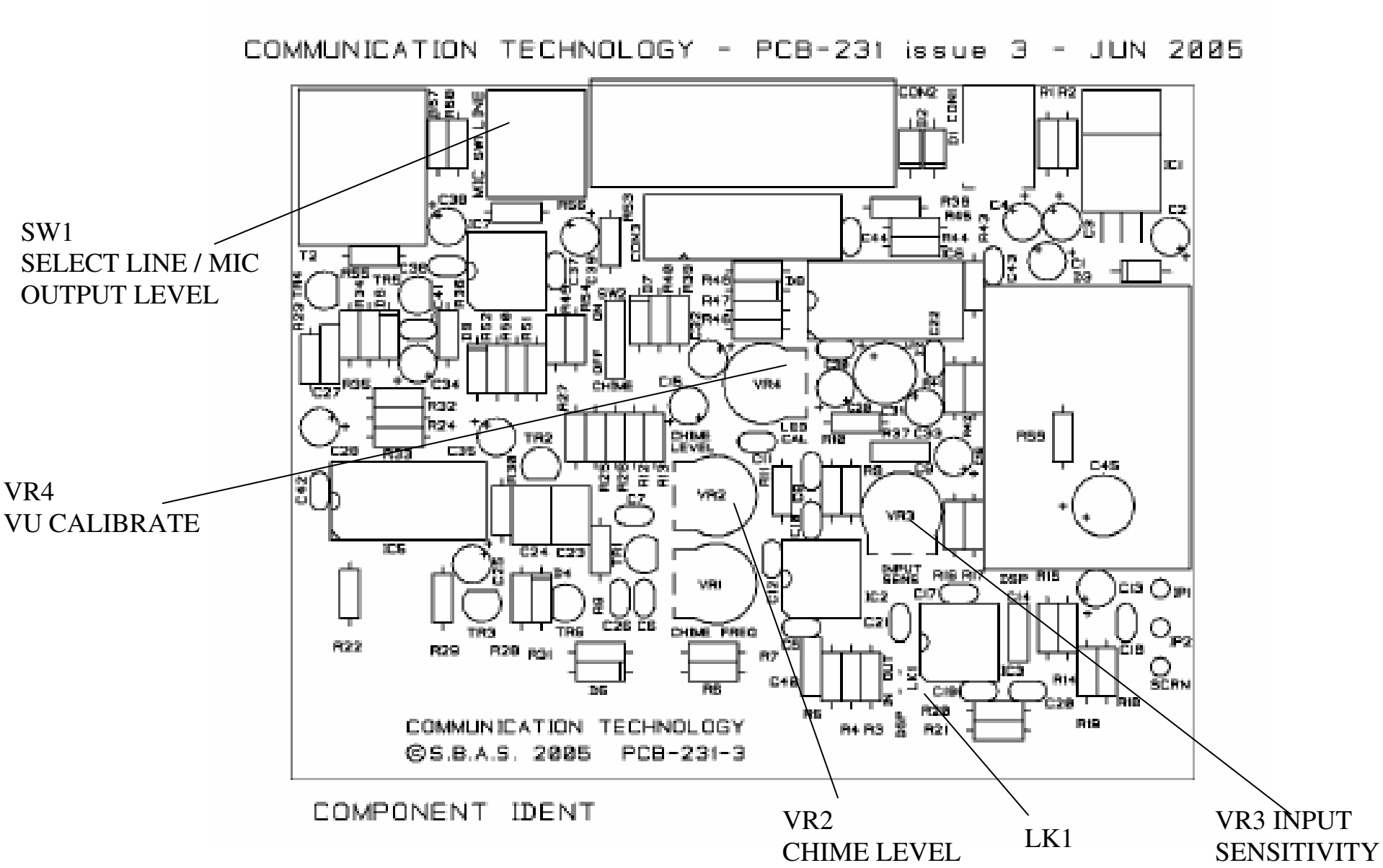
When connected and in place remove the link LK1 from its factory set position OUT, to IN. No further installation steps are required except to determine the level of noise suppressions, best achieved by "trial and error", starting at Level 1 and progressing to Level 8 or to a 'listening test' optimum.



A table of available facilities, colour of relevant flexibles and 'D' pin references is shown below. ACCESS : VOLT FREE CONTACTS : SWITCH PAIR

CONN PIN No.	DPM 102/B & DPM 202/B
1	OV
2	'ACCESS' ZONE 2
3	LED 1
4	LINE OUTPUT
5	0V COMMON
6	LED (COMMON POSITIVE)
7	SCREEN (0V)
8	
9	24 DC POWERING
10	'ACCESS' ZONE 1
11	
12	LINE OUTPUT
13	
14	LED 2
15	

In the event of any questions please contact your Supplier or our Service Department on 0800 917 8488


COMMUNICATION TECHNOLOGY - PCB-231 issue 3 - JUN 2005
SW1
SELECT LINE / MIC
OUTPUT LEVEL
VR4
VU CALIBRATE
COMMUNICATION TECHNOLOGY
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COMPONENT IDENT
VR2
CHIME LEVEL
LK1
VR3 INPUT
SENSITIVITY

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BATCH REF: .....

FLUSH WALL MOUNTING SINGLE AND TWO ZONE PAGING MICROPHONES TYPE DPM 102B/FM AND DPM 202B/FM:

INSTALLATION AND FACILITIES GUIDE

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PRO-SERIES paging microphones type DPM102B/FM and DPM202B/FM incorporate a range of advanced specification features to accommodate the modern requirements of high intelligibility sound systems. The standard specification includes:

14. Pre-announcement 'gong'; switch selectable, this enables individual paging microphones within a system to prelude announcements with a simple, but attention getting, gong sound.

15. Paging sound level indicator, comprising a VU scaled composite 3 l.e.d. array. This facility will provide reassurance to the announcer of correct use by displaying optimum sound levels and overload. Combined with the benefits of automatic proximity bass cut and sound level limiting, announcements will always be more clearly heard.

16. Microphone developed in the UK by Communication Technology incorporates a speech blast screen and computer designed isolated acoustic chamber for the microphone capsule, to reduce handling noise.

17. Provision for plug-in automatic background noise level reduction, digital sound processing (D.S.P.) technology: when incorporated, DSP virtually eliminates background noise, even equal to that of the intended paging announcement, providing superior results to those of noise cancelling microphones. Noise reductions of up to 30dB can be achieved.

18. 'Soft gate'; noise free, microphone audio activation and closure.

19. PRESS TO TALK button/s protected against accidental use.

20. 'Speak now', or 'System in use', l.e.d/s.

21. Electronic or VOX access receptive, to match host amplifier facilities.

22. Provision for local or remote powering for the internal processor electronics

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23. Long line, 0dBm 600R, output, optionally available at 'microphone' level by on-board switch selection.

N.B. The standard microphone capsule is moving coil; electret and noise–cancelling microphone capsule options are available to special order.

BRIEF TECHNICAL INFORMATION

FREQUENCY RESPONSE:

Pre-amplified: Unlimited	: ±3dB 100Hz to 8KHz
	: bass cut on limit : variable with voice proximity to –18dB @ 100Hz
	: proximity level limiting : maximum 26Db
Output level	**:** switchable 0dBm, 600 R source, or -20dBm, 60 R source
Powering	**:** 24V dc; from host amplifier or plug-top power supply @ 100mA max when using DSP 350.

ORDER CODES

DPM 102B/FM	Single zone with 600R line pre-amplifier with proximity auto bass cut and limiter
DPM 202B/FM	Single zone with 600R line pre-amplifier with proximity auto bass cut and limiter
DSP 350	Digital signal processor; increases the difference between unwanted background noise and speech announcements, even where this noise is at the same level as the announcement; plugs into DPM 102/202, preset noise attenuation of up to 30dB

SETTING TO WORK : DPM 102B/FM and DPM 202B/FM

CONNECTIONS TO HOST AMPLIFIER

SINGLE & TWO ZONE ACCESS INFORMATION APPLIES TO ALL VERSIONS.

REMOVE THE TWO SECURITY SCREWS FROM THE MICROPHONE FRONT PANEL TO GAIN INTERNAL ACCESS.

PIN NUMBERS REFER TO THE 15 WAY PLUG-ON SCREW TERMINAL P.C. BOARD, FOR CONNECTION TO THE HOST SYSTEM. TO EASE HOST SYSTEM INTERFACE THIS IS MOUNTED IN THE FLUSH BACK BOX SUPPLIED, ALLOWING HOST WIRING TO BE COMPLETED BEFORE PAGING PRODUCT INSTALLATION. EXTERNAL CABLE ACCESS IS PROVIDED BY 'KNOCK OUT' DISCS IN THE BACK BOX SUPPLIED. SELECT THE ONE/S MOST SUITED TO THE INSTALLATION NEEDS.

SINGLE ZONE *(SHORTED WHEN ZONE 1 PTT OPERATES)*	ACCESS/SWITCH	**5**
	PAIR	**10**
SECOND ZONE *(SHORTED WHEN ZONE 2 PTT OPERATES)*	ACCESS/SWITCH	**5**
	PAIR	**2**

NOTE: TERMINAL 5 IS COMMON TO BOTH ZONES AND CAN BE LINKED TO TERMINAL 7 TO PROVIDE 'GROUNDED' ACCESS. TWO ZONE SYSTEMS OPERATE WITH OTHER SYSTEM ELECTRONICS, e.g. COMMUNICATION TECHNOLOGY ZRU 102 ZONE RELAY SELECTOR.

BUSY LED

(12 or 24v SUPPLY REQUIRED FROM HOST SYSTEM WHEN MIC INPUT ACCESSED)

	COMMON POSITIVE	**6**
SINGLE ZONE	BUSY LED	**3**
SECOND ZONE	BUSY LED	**14**

AUDIO OUTPUT

The nominal output is factory set to be 700mV. This allows the microphone to be at a greater distance from the host Amplifier without picking up external interference from other circuits as would be the case at normal microphone, non-preamplified, signal levels.

Make sure that your host Amplifier MICROPHONE input is set for **LINE** level and **NOT** MICROPHONE level sensitivity. Without this pre-requisite, excessive noise levels will be present at the Amplifier to which this microphone is connected, speech signals will suffer high levels of distortion; any VOX circuitry may also be activated in this incorrect arrangement, overriding music signals, leaving the microphone circuits having access to the system at all times.

If in doubt contact the supplier of your system amplifier for technical assistance.

POWERING THE PRE-AMPLIFIER

This can be accomplished in two alternative ways:

c) **by use of a local power supply, e.g. PSU 24V**

d) **by independent powering from the host system**

INDEPENDENT REMOTE POWERING FROM HOST SYSTEM

POSITIVE 24V +	:	**9**
NEGATIVE, 0V -	:	**1**

LOCAL POWERING FROM 'PLUG TOP' POWER SUPPLY PSU 24v

REMOVE THE 2.5MM SOCKET FROM PSU 24V LEAD

: CONNECT CABLE SCREEN (24V NEGATIVE, OV) TO **1**

: CONNECT WHITE (24V POSITIVE +V) TO **9**

LINE LEVEL PREAMPLIFIER OUTPUT **4**

This is a 'floating' output arrangement. Please ask **12**
Communication Technology engineers if a balanced configuration is required.

THE FOLLOWING INSTALLATION SPECIFIC ADJUSTMENTS REQUIRE ACCESS TO THE INBUILT P.C.B; PRIOR TO INSTALLATION IN FLUSH BACK BOX SUPPLIED, MK CODE LN 5268.

LINE OUTPUT ADJUSTMENT

Refer to the board layout. A two-way switch SW1 allows for selection of 600R line level output (LINE), nominal 700mV, or microphone level, (MIC) 80mV, 60R. Choice is often related to length of cable from microphone to system.

The preamplifier incorporates two features to enhance speech intelligibility: an automatic bass cut and speech level limiter. Both of these function as the microphone user gets close to the microphone head.

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The overall output level and the point where the above features become operational can be adjusted by on-board **VR3** (INPUT SENS).

VU DISPLAY

In some environments and with some operators of the paging microphone it could be necessary to adjust the sensitivity of the 3 l.e.d. VU display. Rotating **VR4**, LED CAL, clockwise will increase sensitivity, anticlockwise reducing sensitivity.

GONG FUNCTION

Ex-factory this facility is already enabled; to switch off select SW2 to 'off'.

Adjust **VR2** CHIME LEVEL to set a gong sound level relevant to and balanced with normal speech levels.

Do not adjust VR1 which is FACTORY SET for gong frequency

BACKGROUND AMBIENT NOISE REDUCTION: DSP 350

Pro-Range single and two-zone desk paging microphones, DPM 102B/FM and DPM 202B/FM, incorporate the 'plug-in' facility for ***NEW*** Digital Signal Processing (DSP) technology to remove unwanted background noise from speech, enabling announcements to be more easily understood.

A technique called "spectral diffusion" is used to avoid the phenomenon of "musical tones" that can be experienced with many other DSP technologies. The technology is self-adapting to changing noise environments; no 'training' of the noise filter is required.

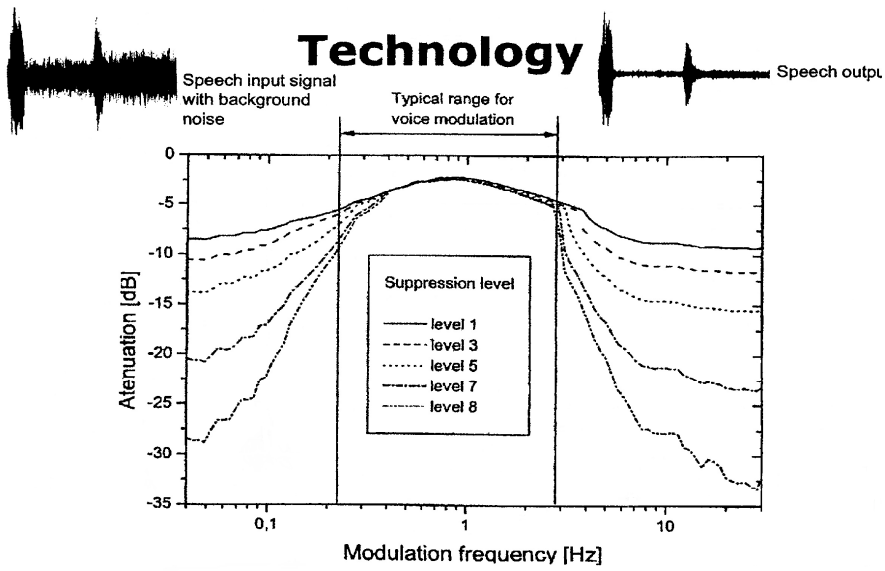
Installers can adjust the level of noise suppression to system requirements; the residual background noise still sounds natural, but up to 30 dB lower.

For most suppression settings there is virtually no distortion of the speech signal, even for signal-to-noise ratios of 0 dB and worse.

INSTALLING DSP 350

DSP 350 comprises a small plug-in printed circuit board, loaded onto the DPM circuit board using the four plastic pillars which simply push-in place.

When connected and in place remove the link LK1 from its factory set position OUT, to IN. No further installation steps are required except to determine the level of noise suppressions, best achieved by "trial and error", starting at Level 1 and progressing to Level 8 or to a 'listening test' optimum.



A table of available facilities, and connector pin references is shown below.

ACCESS: VOLT FREE CONTACTS: SWITCH PAIR

DPM 102B/FM & DPM 202B/FM	**CONN PIN No.**
OV	1
'ACCESS' ZONE 2	2
LED 1	3
LINE OUTPUT	4
0V COMMON	5
LED (COMMON POSITIVE)	6
SCREEN (0V)	7
	8
24 DC POWERING	9
'ACCESS' ZONE 1	10
	11
LINE OUTPUT	12
	13
LED 2	14
	15

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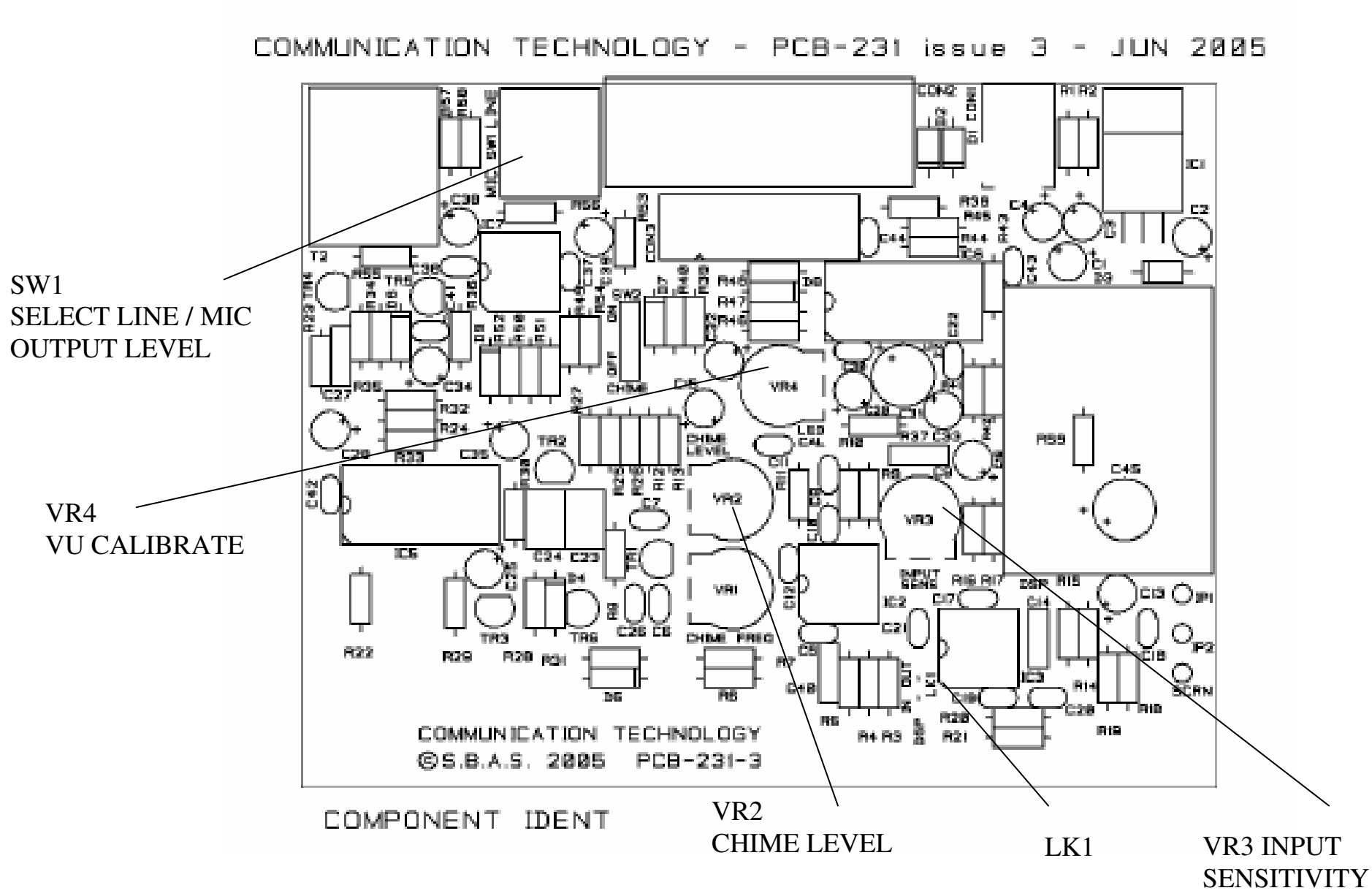
COMMUNICATION TECHNOLOGY - PCB-231 issue 3 - JUN 2005
SW1
SELECT LINE / MIC
OUTPUT LEVEL
VR4
VU CALIBRATE
VR2
CHIME LEVEL
LK1
VR3 INPUT
SENSITIVITY
COMMUNICATION TECHNOLOGY
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COMPONENT IDENT

A Division of SCARECROW BIO-ACOUSTIC SYSTEMS LIMITED

USING WC15W, FEMALE 'D' CONNECTOR WALL MOUNTING CABLE INTERFACE FOR DPM 102/B & 202/B

(D – D cable supplied with WC15W: 1.8m)

All of the connection facilities available on this range of PRO-SERIES pre-amplified paging microphones are detailed in the table below. WC15W will fit on a standard single gang UK flush back box. Use the screws supplied for fixing.

Pin numbers refer to those on the WC15W printed circuit board and 'D' connector; the screw connectors are push-on to pins and if necessary can be removed by gently lifting them off.

PIN / SCREW CONNECTOR REF.	CONNECTION PURPOSE
1	OV
2	'ACCESS' ZONE 2
3	LED 1
4	LINE OUTPUT
5	0V COMMON
6	LED (COMMON POSITIVE)
7	SCREEN (0V)
8	
9	24 DC POWERING
10	'ACCESS' ZONE 1
11	
12	LINE OUTPUT
13	
14	LED 2
15	

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Installing in noisy environments, such as machine shops, transport termini?
Eliminate that noise with DSP 350 technology!

NEW Pro-Range single and two-zone desk paging microphones, DPM 102B and DPM 202B, incorporate the 'plug-in' facility for ***NEW*** Digital Signal Processing (DSP) technology to remove unwanted background noise from speech, enabling announcements to be more easily understood.

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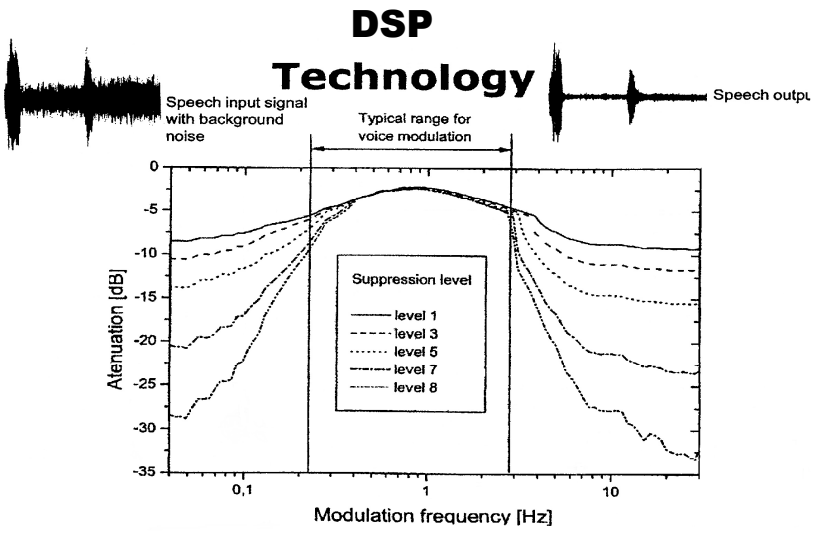

PRODUCT ORDER CODES:

SINGLE ZONE MICROPHONE:	DPM 102/B
DUAL ZONE MICROPHONE:	DPM 202/B
NOISE SUPPRESSOR:	DSP 350

CT Manuals / DSP 350

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