Technical Data Sheet

TECPRO ME742 MASTER STATION EXTENDER - USER GUIDE

27-742 TECPRO ME742 MASTER STATION EXTENDER

CONTENTS

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1.0 INTRODUCTION

The Tecpro system is a 'two-wire' or 'party line' system which enables a number of personnel to take part in the same conversation simultaneously. Major applications are in the theatre, television studios, conference venues and stadiums.

The Tecpro ME742 master station extender allows two additional intercom circuits C and D to be created and each circuit can power up to a maximum of 30 belt-packs, or a mix of belt-packs and loudspeaker stations.

N.B. The ME742 master station extender is an optional upgrade to an MS741 master station i.e. the ME742 master station extender alone is not a working solution. It can only be used in conjunction with an existing MS741 master station.

This data sheet should be read in conjunction with the MS741 data sheet.

System cabling should be a twisted pair with an overall screen and the cabling can radiate out from a central distribution point or looped from one outstation to the next and so on. A combination of both methods is often used.

The Tecpro ME742 master station extender is compatible with original Tecpro products.

2.0 FEATURES

- Two independent intercom circuits C and D
- Circuits may be linked as necessary
- Supports up to 30 Tecpro belt-packs or 7 Tecpro loudspeaker outstations per circuit
- Short circuit and overload protection on each circuit
- AUX audio can be routed to circuits C and D
- Separate 'Announce' output allows paging announcements to be made to an external system

3.0 INSTALLATION

3.1 Power Supply

The ME742 can be rack-mounted and occupies 1U of rack space.

The unit has a universal power supply and can accept supply voltages from 90 – 260V AC. There is an IEC mains inlet provided on the rear panel. The main power switch is on the front panel and when switched on the red indicator illuminates.

3.2

Connecting the MS741 to the ME742 is achieved by using the supplied 15-pin D Sub male to 15-pin D Sub male inter-connection lead. The 15-pin D Sub connectors are at the rear of each unit. 3.2

3.3 Circuit C and D

Loudspeaker stations and belt-packs can be connected to circuits C or D as necessary. Two rear panel male XLR3 connectors are provided for each circuit. Please see figure 1.

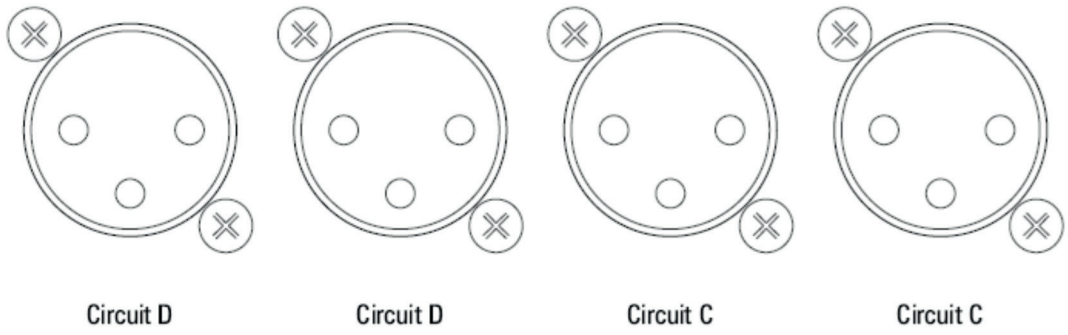

Figure 1:Rear panel XLR circuit C and D connectors

The system interconnection cable should be a screened twisted pair with XLR3 connectors as follows:

Pin 1	Earth / Screen
Pin 2	+24V DC
Pin 3	Audio

3.4 Rear Announce Output

A rear 6-pin DIN socket is provided for making an independent paging announcement to an external sound system. The audio output is electronically balanced and is nominally at line level, the relay contact closes simultaneously and can be used as a GPI contact closure to signal to external equipment.

The announce function can also be activated remotely by connecting pin 6 to pin 3

Pin 4 and 5	Balanced audio output
Pin 3	Ground
Pin 6	ANNOUNCE function. (Connect to pin 6 to pin 3 to remotely activate the function)
Pin1 and 2	Single pole relay contact, normally open

4.0 OPERATION

4.1 Circuit C and D Switches

To listen to circuit C or D first press the associated CIRCUIT switch. A momentary press will latch this function and holding the switch down will enable the function only as long as the switch is pressed. The associated circuit switch will illuminate GREEN when selected. You can then listen to all outstations and belt-packs on the selected circuits. It is possible to select C and D individually or together. Please see figure 2.

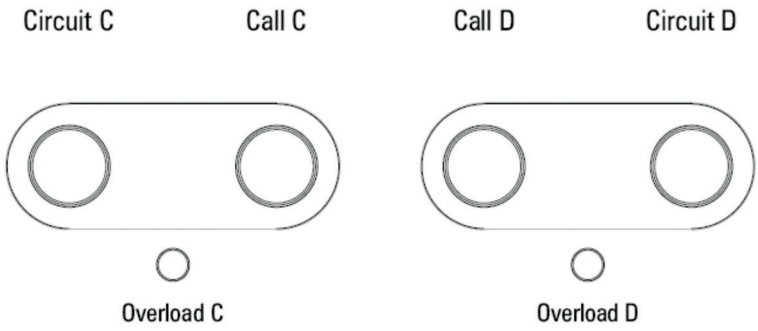

Figure 2: Circuit and call C and D switches

4.2 Speaker And Headphone Level Control

When listening to outstations and belt-packs, you must use the MS741. Either use the MS741 front panel loudspeaker with the associated speaker level control or plug in a Tecpro headset into the XLR4 connector and use the phones level control. Please see figure 3.

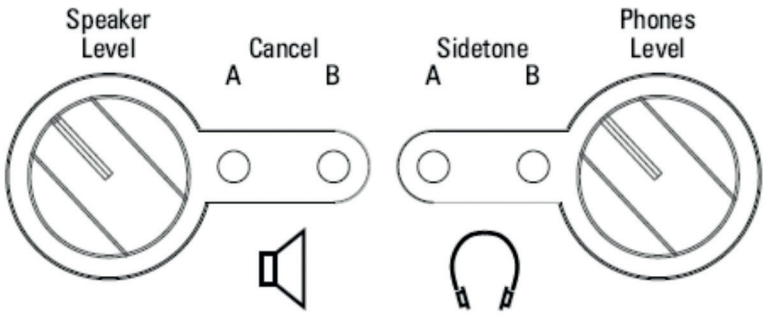

Figure 3: MS741 Loudspeaker and headphone level control

N.B. If a headset is plugged into the XLR4 connector both the front panel loudspeaker and the built-in front panel electret mic are muted.

4.3 To Communicate Using A Headset Or The Internal Mic

To communicate with other personnel on the system you must use the MS741 by either using the built-in front panel electret microphone or alternatively you can plug in an optional Tecpro headset using the front panel XLR4 connector. An optional 27-912 Tecpro gooseneck mic is also available and this can be plugged into the XLR4 connector as a further method of talking. Please see figure 4.

Ensure the circuit you want to communicate with is first selected – please see section 4.1

Circuit A, B, C and D can be selected in any combination

Press the MIC switch to talk. A momentary press will latch this function and holding the switch down will enable the function only as long as the switch is pressed. The switch will illuminate GREEN when selected.

N.B. Connecting an optional headset will mute the front panel loudspeaker and the built-in front panel electret mic. Plugging in an optional gooseneck mic will mute the internal electret mic only.

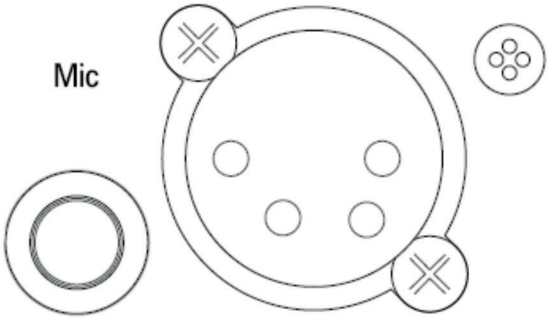

Figure 4: MS741 Front panel headset XLR4 connector, internal mic and talk switch

4.4 Call C and D Switches

To call on circuit C or D press the associated CALL switches, please refer to figure 2. A momentary press will send a call signal for 1 second, holding the switch down will send a call signal for as long as the switch is pressed. The associated switch will illuminate RED and a call signal will be sent to all connected outstations and belt-packs on that circuit.

4.5 Auxiliary Input

An auxiliary input is provided on the rear of the MS741 to allow a 'show relay' or cue audio feed to be mixed onto the Tecpro system. To control the level of auxiliary audio on the system there is a front panel AUX LEVEL control and selector switches. A momentary press of the respective AUX selector switch sends the auxiliary audio to circuit A, B, C or D selected in any combination. The associated front panel AMBER LEDs indicate the current status and the AUX switch glows GREEN to indicate auxiliary audio is being used. Please see figures 5 and 6.

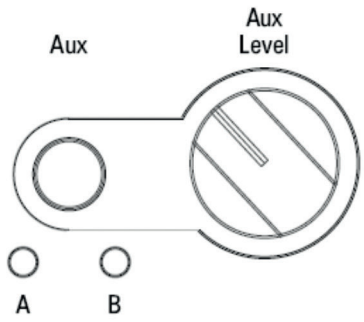

Figure 5: MS741 Auxiliary level control and channel selector A and B

Figure 6: ME742 Auxiliary channel selector C and D

The rear balanced XLR3 auxiliary audio input on the MS741 is switchable between mic or line level sensitivity using the adjacent toggle switch. There are three positions: LINE, MIC and MIC with +48V phantom power. Please see figure 7.

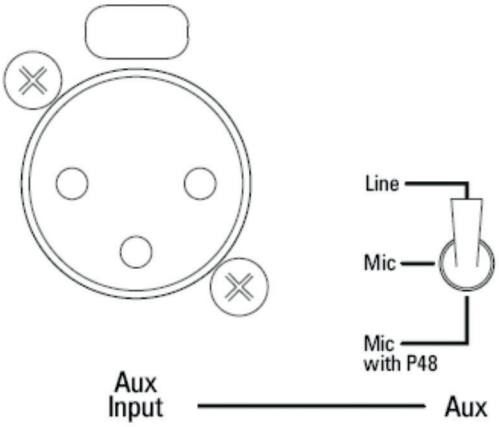

Figure 7: Rear auxiliary input XLR3

4.6 Announce Switchl

To make an independent paging announcement to an external sound system press the ANNOUNCE switch. The ANNOUNCE switch will glow RED and the MIC switch will glow GREEN for the duration of the announcement. This paging announcement will only be routed to the rear 6-pin DIN socket. The audio output is electronically balanced at nominally line level and there is a single pole relay normally open contact available for GPI use. There is also the facility to remotely operate the ANNOUNCE function by closing the pin labelled Announce Switch to GND. Please see figures 8 and 9.

Figure 8: Front panel announce switch

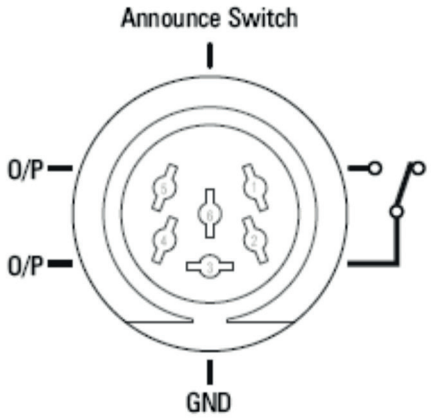

Figure 9: Rear 6-pin DIN socket

4.7 Channel C and D Overload LED Indicators

The front panel channel overload indicators will glow RED if the respective channel has a system cable 'short circuit' or if it is overloaded with too many outstations. Channels C and D have individual indicators.

N.B. This is a fault condition and should be investigated to find the cause.

Once the fault has been cleared in the system, the ME742 will automatically restore the system 24V and the respective LED will go out. Please see figure 10.

Figure 10: Channel C and D overload LED indicators

4.8 Channel Linking

Using the MS741 master station and the ME742 master station extender in conjunction with each other circuits A, B, C and D can be linked together to form common circuits as required. Please see figures 11 and 12.

Figure 11: MS741 Circuits independent or linked toggle switch

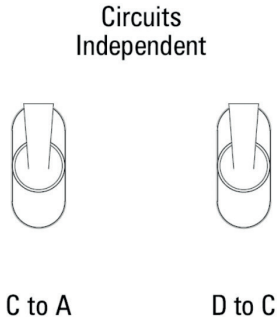

Figure 12: ME742 Circuits independent or linked toggle switches

Please see the table in figure 13 below illustrating the various linking modes that are available.

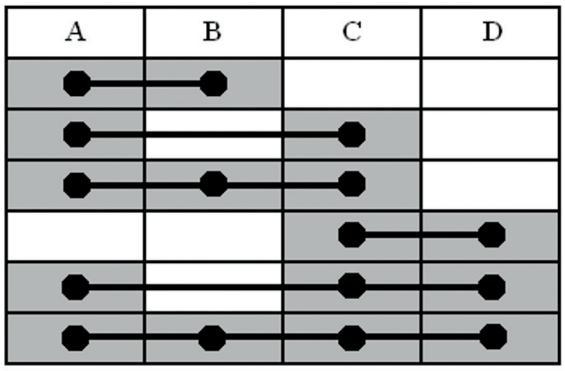

Figure 13: Circuit linking possibilities using the toggle switches

5.0 CONFIGURATION

N.B. Please note that these adjustments are for advanced users only and the factory default settings are the preferred option for most users - and so no adjustments would normally be required.

Adjustments are made by positioning handbag links on PCB headers and adjusting variable potentiometers. Please see figure 14 for their locations.

ADJUSTMENTS SHOULD ONLY BE MADE BY SUITABLY QUALIFIED PERSONNEL.

5.1 Cancel and Sidetone Presets

These are accessible through the front panel. N.B. They will not normally require adjustment as they have been carefully set for a null position during manufacture.

The function of the CANCEL preset is to minimise acoustic feedback between the front panel electret microphone and the front panel speaker. There are individual CANCEL presets for circuit C and D.

The function of the SIDETONE preset is to minimise the amount of microphone signal heard in the headset when plugged in. There are individual SIDETONE presets for circuit C and D.

5.2 Internal View Of Main PCB

IMPORTANT - Before removing the top cover, please make sure the unit is un-plugged from the mains supply.

Remove the seven top cover screws and slid the cover off. This will reveal the main internal PCB. Please see figure 14.

5.3 Ducking Of Auxiliary Audio

The DUCK_C header PL9 has three link positions:

OFF The auxiliary audio level on circuit C is muted during the presence of a microphone signal from the MS741 on circuit C.

VR The auxiliary audio level on circuit C is reduced by a level preset by VR9 – set during manufacture to give 12 dB ducking of the auxiliary audio.

ON The auxiliary audio level on circuit C is unaffected by the presence of a microphone signal from the MS741 on circuit C.

The factory default setting is VR - please see figure 15.

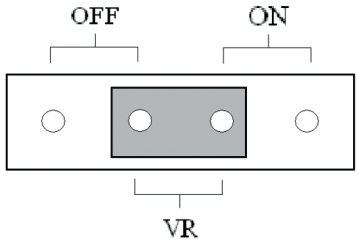

Figure 15: DUCK_C PL9

N.B. The DUCK_D header PL10 has the same functionality - but controls the auxiliary audio signal on circuit D. VR10 sets the level of ducking.

5.4 DC Call Option

The DC CALL header PL20 has two link positions:

ON When a call signal is sent onto any circuit from the MS742 a DC voltage is sent. This is necessary to ensure compatibility with existing circuits that use original Tecpro outstations.

OFF Can only be used when a system consists exclusively of new Series 2 Tecpro outstations which use 20kHz call signalling.

The factory default setting is ON - please see figure 16.

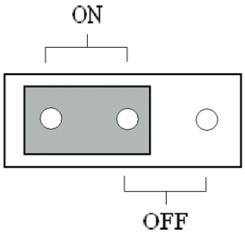

Figure 16: DC CALL PL20

5.5 Option PL21

PL21 is not currently used. Set to OFF.

6.0 TECHNICAL SPECIFICATION

Microphone	200 ohm dynamic type	
Headset earphone	400 ohm typical – 32 ohm to 4k ohm acceptable	
Front panel built-in mic	Electret type	
Internal speaker	2W elliptical type	
Rear speaker output	2-pole A-gauge 6.35mm socket for an 8R 2W speaker	
System output voltage	+24V DC	
System line termination impedance	200 ohm in the audio frequency band, 5k ohm at DC	
Auxiliary Input phantom power	XLR3 electronically balanced, line or mic sensitivity with +48V	
Rear microphone Input	2-pole A-gauge 6.35mm unbalanced socket	
Announce output	6-pole DIN socket with electronically balanced audio output. Single pole relay contact rated at 30V 1A maximum for GPI use	
Call signal	DC and 20kHz	
Remote mic kill signal (RMK)	24kHz	
Override signal	28kHz	
Maximum number of outstations per circuit	30 beltpacks or 7 loudspeaker stations	
System cabling	Fixed installations:	31-050 FST-HD
	Mobile facilities:	30-130 HST-HD
Power	90 – 260V AC 50 – 60Hz	
Fuse rating	2A (T) HBC for 240V AC operation	
	4A (T) HBC for 110V AC operation	
Dimensions	1U rack mount 195mm deep	
Weight	1.6 kilos each	

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7.0 WIRING CONVENTION

7.1 Cable requirements

Three factors affect the choice of cable for a particular system or installation:

(a) The length of cable run – longer runs require a larger gauge cable.

(b) The number of outstations on each cable – increasing the number of outstations requires a larger gauge cable.

(c) Permanent installation or mobile use.

In general, we suggest a screened 0.5 sq mm (20AWG) twisted pair cable should be used. Canford heavy duty cables FST-HD, HST-HD and HST-HD-R are suitable. HST-HD-R has a polyurethane jacket, which has very similar properties to rubber – i.e. very abrasion resistant and resilient. FST-HD is a foil screened cable specifically for permanent installation purposes.

HST-HD can be used for mobile systems.

7.2 System cable connectors for current beltpacks

BP511, BP531, BP523, BP543	XLR3	Pin 1	Earth / Screen
		Pin 2	+24V DC
		Pin 3	Audio
BP525, BP545,	XLR5	Pin 1	Earth / Screen
		Pin 2	+24V DC
		Pin 3	Audio Circuit 1
		Pin 4	+24V DC
		Pin 5	Audio Circuit 3

N.B. XLR5 pin connectors must be Neutrik type. Switchcraft XLR5 pin types are non-standard - and are NOT suitable.

7.3 Headset connectors for current beltpacks

XLR4 4pin	Pin 1	Microphone screen
	Pin 2	Microphone signal
	Pin 3	Earphones common
	Pin 4	Earphones signal

7.4 System cable connectors for current beltpacks

BP111, BP112, BP114, BP116	XLR3	Pin 1	Earth / Screen
		Pin 2	+24V DC
		Pin 3	Audio
BP113, BP115, BP117	XLR6	Pin 1	Earth/screen
		Pin 2	+24V DC
		Pin 3	Audio Circuit 1
		Pin 4	Audio Circuit 2

		Pin 5	Audio Circuit 3
		Pin 6	Audio Circuit 4

7.5 Headset connectors for older beltpacks

BP111, BP112, BP113, BP114, BP115	XLR4	Pin 1	Microphone screen
		Pin 2	Microphone signal
		Pin 3	Earphones common
		Pin 4	Earphones signal
BP116, BP117	XLR5	Pin 1	Microphone screen
		Pin 2	Microphone signal
		Pin 3	Earphones common
		Pin 4	Left earphone
		Pin 5	Right earphone

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NOTES

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