

---

# MASTERCALL

TEST LINE EXTENDER  
MODEL MC-4044 SERIES 5

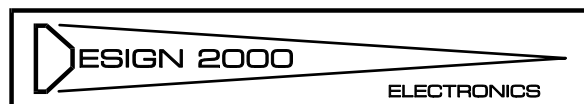
---

INSTRUCTION AND INSTALLATION MANUAL  
EDITION 3 MAY, 2002

AUSTEL PERMIT NUMBER A94/05/0234  
ACA SUPPLIER CODE N468

---

DESIGNED AND MADE IN AUSTRALIA



**DESIGN TWO THOUSAND PTY LTD**

TELEPHONE + 61 3 9758 5933  
FACSIMILE + 61 3 9758 5560

---

© COPYRIGHT 2002

---

# MASTERCALL MC-4044

## TEST LINE EXTENDER

---

### Section 1

General Description Of Mastercall Test Line Extender

Mastercall Extender Description	1
Features	1
Functional Description	2

### Section 2

Installation Instructions

Extender Requirements	4
-----------------------	---

### Section 3

Programming Instructions

Personal Identification Number (PIN)	5
Answer Delay	5
Diversion Activate/Deactivate	5
Keypad Enable/Disable	5
Diversion Number(s)	5
Call Counter	6
Diversion if no Answer	6
Auto Turn On	6
Remote Control	7
Diversion Announcement	8
Identification Announcement	9
LRD Code Identification	10
System Configuration Codes	11
Amplifier Codes	13

### Section 4

General

Programming Summary	14
Specifications	15



FOR

  
**PRIMUS**<sup>®</sup>  
TELECOM

---

## MASTERCALL MC-4044 TEST LINE EXTENDER

**DESIGN TWO THOUSAND PTY LTD** MELBOURNE AUSTRALIA

### SECTION 1 - GENERAL DESCRIPTION OF THE EXTENDER SYSTEM

The Test Line Extender (*TLE*) is used by Test Officers to test the integrity of a telephone exchange ("Central Office") or PABX at a remote location from any location.

It provides full access to and from the remote telephone system via the Public Switched Telephone Network (PSTN).

The *TLE* has two standard analogue ring in/loop out line interfaces. Line 2 (OUT) of the unit provides dial tone from the remote exchange, and Line 1 (IN) provides automatic call diversion if required.

Because the *TLE* is connected to a dial up exchange line or PABX extension, the need for dedicated 'out of area' test lines is obviated.

All system parameters of the *TLE* are remotely programmable.

The unit can also be programmed to call back the test officer via the Ring in/Call back feature so that the test session is established from the remote switch.

MASTERCALL MC4044 Series 5 Test Line Extender incorporates the following features and many more:

- Independent and transparent test call facility
- Full access to and from the Remote Telephone Exchange or PABX
- Programmable PIN access
- Hook flash and line release for call transfer and 'follow-on' calls.
- Follow-on call feature (no need to hang up and call in again to make more calls)
- Remote control with digitised voice prompts and responses
- Programmable answer delay
- Programmable diversion announcement
- Programmable identification announcement
- Programmable ID tone
- LRD Code
- Diversion if no answer or auto turn on
- Call counter
- Two number try
- Voice frequency hybrid amplifier
- Call progress detector
- Loop current detectors for calling party control and answer detect
- 12 → 48 Volt dc (nom.) operation.

---

## EXTENDER FUNCTIONAL DESCRIPTION

The **TLE** is perfectly suited for Test Officers working from a central location (or any location) remote from the telephone exchange under test.

It provides them with full access to and from the remote exchange without the need for any dedicated lines running to the central location.

The **TLE** provides access to dial tone when the 'OUT' line is called and an automatic call diversion facility when the 'IN' line is called.

The Mastercall Test Line Extenders link up your remote exchanges to the control centre for test call purposes without any permanent or expensive dedicated connections. Any telephone effectively becomes an extension on the remote exchange or PABX.

Line 1 (IN) and Line 2 (OUT) of **TLE** are connected to any standard analogue two wire bothway lines on the remote telephone exchange or PABX.

### Operation

Ringling line 2 of **TLE** will cause it to answer and ask for a PIN number. When the valid PIN is entered, you hear dial tone from the remote exchange at which time you have transparent test line access.

Ringling Line 1 of **TLE**, if activated, causes it to dial out the pre-programmed diversion number on line 2 and make a connection when the dialled number answers.

### How Is a Call Diverted ?

When the diversion facility is activated, the application of ring voltage to Line 1 causes the **TLE** to loop Line 2, wait for dial tone and dial the pre-programmed diversion number. If the number is busy, the **TLE** redials. If ring tone is detected, the **TLE** waits for an answer. Upon answer an audio path is established between Line 1 and Line 2. The **TLE** then uses its line detector or call progress tone detector to disconnect the call.

### How Do You Obtain Dial Tone from the Remote Exchange ?

Application of ring voltage to Line 2 causes the **TLE** to answer after the pre-programmed answer delay and request a PIN number. After the valid PIN is entered (in DTMF), the **TLE** loops Line 1 and dial tone is heard. You can now use your phone as though it was an extension on the remote exchange with two minor exceptions:

1. If you wish to perform a hook flash, eg. to place a call on hold and recall the called party, press \*\*\*.
2. You can release the exchange line by pressing ###, and then reloop by pressing \*\*\*.

The hook flash, recall and release features enable you to put calls on hold, recall them or transfer them to another extension if and when required. It also allows you to regain exchange dial tone to make further calls without having to hang up and log on again.

### Follow-on Calls

Having made a call through the **TLE**, you can make further calls (Follow-on calls), without the need to hang up and call in again. Simply press ###, wait two seconds or more, then press \*\*\* and dial tone will be re-obtained.

Notes:

1. You will not be required to enter a PIN number for remote exchange access if the PIN is preset to 9999 by the authorised system administrator.

---

### **Ring In/Call Back Option**

With this option enabled, ringing Line 2 of Extender once and hanging up will cause Extender to call back out on line 2 the pre-programmed diversion number and ask for a PIN number on answer. When the valid PIN is entered, you hear the remote exchange dial tone at which time you have full access.

---

## SECTION 2 - INSTALLATION INSTRUCTIONS

Two analogue ring in/loop out lines and a 12→ 48 Vdc power source are required for the **TLE** to operate.

Several software facilities need to be programmed, including entering the PIN number for remote access and the diversion number (if required). These are described in Section 3. All programming operations can be performed using the inbuilt Keypad or by Remote Control over the telephone.

---

## SECTION 3 - PROGRAMMING INSTRUCTIONS

### AT THE KEYPAD

#### Personal Identification Number (PIN) for Remote Access and Remote Control

Remote access to the **TLE** is protected by a PIN which is stored via the keypad. This two to sixteen digit number is programmed by pressing the following keys:

\* # pppp... #,  
where pppp... is the PIN code

This number cannot be recalled, so if it is forgotten, a new number must be stored. If the PIN is set to 9999, access to Remote Control is unprotected in so far as the user is not required to enter a PIN to gain access to remote dial tone or **TLE** programming.

#### To Program the Line 2 (OUT) Answer Delay

1. Press \* 6703 #.
2. Press \* 63 x, where x = 0 - 9 (answer delay in seconds x 3 (0 - 27 seconds)).
3. Press \* #.

#### Diversion Activate/Deactivate

By pressing 1, the **TLE** 'divert' state is toggled. The activated state is indicated by the green 'Divert' LED on the front panel. When this LED is on, the activated state is selected and all incoming calls on line 1 will be forwarded to the pre-programmed diversion number.

#### Keypad Enable/Disable

The keypad can be disabled and enabled via the entry of a special code. When enabled the keypad is used to perform all functions detailed here. When the keypad is disabled, the only keys that work are the 1 key to turn the Diversion facility on and off, and the following code to enable the keypad.

The sequence to enable/disable the keypad is as follows:

To enable: Press \* 3 3 3 3 #

To disable: Press # 3 3 3 3 #

#### Diversion Number

The number which the **TLE** dials when Line 1 is called is programmed via the keypad. To enter a new number press:

2 nnn nnnn #,  
where nnn nnnn is the required diversion number (up to 19 digits).

#### Second Diversion Number

If the first number is unanswered or engaged, a second number can be tried. To enter a new second number press:

5 nnn nnnn #,  
where nnn nnnn is the second number if required (up to 19 digits).

---

## Identification Tone

When a diverted call is answered, the **TLE** can send a string of DTMF digits. These tones can be decoded at the receiving end in order to identify which **TLE** is calling.

To activate and enter the DTMF identification tones, press:

83 nnn nnnn #,  
where nnn nnnn are the required DTMF digits (up to 19 digits).

To deactivate the ID tone, press 80.

Notes:

1. If no second diversion number is required, you **MUST** enter '0' as the second number.
2. A dialling pause can be entered by pressing \* #.
3. A star (\*) can be entered by pressing \* \*.
4. A hash (#) can be entered by pressing # #.
5. To check the diversion number(s) press 2 # or 5 #.

## Call Counter

1. Press 3 and the **TLE** will display the number of successful diversions (0-256).
2. Press 3 then \* if you wish to reset (clear) the counter.

## Diversion if No Answer

The **TLE** can be programmed to divert after a preset delay. When the **TLE** is in the deactivated state and there is an incoming call which is not answered after the delay, the **TLE** will process the call and then resume the deactivated state after the call. The delay before diversion is entered as a 3 digit number which is the delay in seconds.

\* 6705 #  
\* 2 5 x x x \* #, where xxx is the delay in seconds

To disable delayed diversion, program xxx as 000.

Please Note: Diversion If No Answer is not compatible with Auto Turn On. Auto Turn On, if set, will override Diversion if No Answer.

## Auto Turn On

The **TLE** can be programmed to automatically turn on and divert a call after a preset delay. When the **TLE** is in the deactivated state, and the incoming line rings, the **TLE** will activate and process the diversion request and remain activated after the call. The delay before auto turn on is entered as a 3 digit number which is the turn on delay in seconds.

\* 6705 #  
\* 2 4 x x x \* #, where x x x is the delay in seconds

To disable auto turn on, program xxx as 000.



---

## REMOTE CONTROL OPERATION

The **TLE** can be programmed remotely from any telephone. Operation is summarised here. Please note that ALL programming operations can be performed by Remote Control. So after having accessed Remote Control, simply program by phone as you would at the Keypad.

### Answer Tone

When Line 2 (OUT) is called you will receive an answer tone as follows:

High tone - low tone - modulated tone - pip tone (hi/lo/brrrr/bip).

### To Access Remote Control

1. Dial the Line 2 telephone number.
2. Wait for the answer prompt from the **TLE**.
3. When the **TLE** answers, enter the PIN number (If programmed) using a DTMF dialling telephone.
4. Listen for remote exchange dial tone and press ### 1 within two seconds. Listen for "*Please enter command*". You are now in the **TLE** remote programming mode.

### Diversion Activate/deactivate

You will be guided by the digitised voice prompts.

1. To change the 'divert' status between on/off, press 1.

### Confirmation of diversion number(s)

1. Press 2 then #.
2. The diversion number(s) will be replayed.

### Change the diversion number

1. Press 2 (or 5 to change the second number).
2. After the prompt has finished, enter the required number.
3. Press #.
4. The new number will then be replayed.

The programming can be done in any sequence. Once programming is completed, you may replace the receiver and Extender will hang up in 5-20 seconds.

Alternatively, press # # before hanging up. This will cause Extender to release immediately.

---

## RECORDED VOICE ANNOUNCEMENTS (RVA)

The **TLE** can play a digitally recorded announcement to the caller while the call is being re-directed to another number. The **TLE** can also announce the origin of the forwarded call to the party receiving calls.

The Recorded Voice Announcements are grouped as follows:

### Standard Diversion Announcement

A standard announcement, "*Please hold the line...ring ring...*", is played to the caller while the call is being re-directed to the pre-programmed diversion number.

To Enable the Standard Diversion Announcement:

1. Press 71.

To Disable the Standard Diversion Announcement:

1. Press 70.

### Personalised Diversion Announcement (Optional)

A Personally recorded announcement up to 16 seconds in length (recordable from any telephone) is played to the caller while the call is being re-directed to the preprogrammed diversion number. This feature will only work if the **TLE** is fitted with the PRVA daughter board.

To Record the Personalised Diversion Announcement:

1. Call line 2 of the **TLE** and wait for the answer prompt.
2. Enter the PIN, then ### 1.
3. Press 75
4. Listen for "*Record Announcement*".
5. Dictate your announcement clearly then press #. The announcement will be replayed. Repeat steps 4 - 6 if necessary.  
The announcement is automatically enabled.
6. To replay the announcement you can press 74.
7. Enter other programming changes or hang up.

Summary: Enter PIN, 75...record announcement...#, hang up.

---

### **Standard Identification Announcement**

A standard announcement "*Hello this MASTERCALL*" is played to the receiving party on answering a diverted call.

To Enable the Standard Identification Announcement:

1. Press 81.

To Disable the Standard Identification Announcement:

1. Press 80.

### **Personalised Identification Announcement (Optional)**

A personally recorded announcement (recordable from any telephone), announcing from where the diverted call has originated from, is played to the receiving party when they first answer a diverted call. For example: "*Melbourne Exchange calling*". This feature will only work if Extender is fitted with the PRVA daughter board.

To Record the Personalised Identification Announcement:

1. Call line 2 of Extender and wait for greeting "*Hello, this is MASTERCALL, please enter PIN*".
2. Enter the PIN, then ### 1.
3. Press 85
4. Listen for "*Record Announcement*".
5. Dictate your announcement clearly then press #. The announcement will be replayed. Repeat steps 4 - 6 if necessary. The announcement is automatically enabled.
6. To replay the announcement you can press 84.
7. Enter other programming changes or hang up.

Summary: Enter PIN, 85...record announcement...#, hang up.

---

## STORING THE LRD CODE (UP TO SIXTEEN CHARACTERS)

When accessed, the **TLE** announces its Link & Route Detail (LRD) code so that you can verify that you have reached the required **TLE**.

The LRD code can be any combination of alphanumeric characters.

When installing the **TLE**, the appropriate LRD code should be programmed.

### Entering the Alphanumeric LRD Code

The LRD code is programmed from the inbuilt keypad or by Remote Master Programming as described above.

To set the **TLE** ready to accept the LRD input:

Press \* 4044 #. The **TLE** responds with "Enter characters...", waiting for you to begin entering characters.

### Selecting Alphanumeric Characters

Standard telephone key number/letter assignments are employed and (Q), (.), and (Z) are also assigned to the number 1 key.

Alphanumeric Key assignments:

Key	Character	Key	Character	Key	Character
<b>1</b>	Q, (.), Z, 1	<b>2</b>	A, B, C, 2	<b>3</b>	D, E, F, 3
<b>4</b>	G, H, I, 4	<b>5</b>	J, K, L, 5	<b>6</b>	M, N, O, 6
<b>7</b>	P, Q, R, S, 7	<b>8</b>	T, U, V, 8	<b>9</b>	W, X, Y, Z, 9
<b>*</b>	(Clear) clears last character entered.	<b>0</b>	(Zero)	<b>#</b>	(Enter) stores last character entered.

A desired letter is entered through the telephone keypad by pressing the associated numerical key the required number of times (indicated by the position of the letter or number on the key). As letters and numerals are entered, they are repeated.

Examples:

KEY	CHARACTER	
<table border="1"><tr><td>ABC <b>2</b></td></tr></table>	ABC <b>2</b>	2=A, 22=B, 222=C 2222=2
ABC <b>2</b>		
<table border="1"><tr><td>TUV <b>8</b></td></tr></table>	TUV <b>8</b>	8=T, 88=U, 888=V 8888=8
TUV <b>8</b>		

After the first character is entered, press # (normally referred to as 'Hash' but in this case (enter)). The **TLE** is waiting for the next character. Continue until complete, then press another closing # to store and end programming.

To check the LRD code, press \* 4044 # #.

The voice synthesizer will confirm all entries by reading them back as they are entered and when the closing # is pressed.

---

## SYSTEM CONFIGURATION CODES

Using either the Extender Keypad or by Remote Control, enter System access code \* 67 03 #,listen for "Please enter command"

### COMMANDS

\* nn where nn is option code number

n = entry

# = scroll down to next option number

\* \* = abandon (do not save any changes)

\* # = store (save any changes)

After either storing or abandoning program changes you can continue to make other programming changes, press # # to end, or simply hang up.

OPTION	CODE	ENTRY	RESPONSE
TYPE OF DIALLING	* 61		"61 is n, please enter command"
Tone/Pulse Auto		1	1
<u>Tone (DTMF)</u>		<u>2</u>	<u>2</u>
Pulse (DEC)		3	3
TELEPHONE LINES	* 62		"62 is n, please enter command"
<u>Direct exchange lines L1 &amp; L2</u>		<u>1</u>	<u>1</u>
'O pause' PABX extensions L1 & L2		2	2
Exch L1, PABX L2		3	3
PABX L1, exch L2		4	4
L2 ANSWER DELAY	* 63		"63 is n, please enter command"
n x 3 secs (eg. 2 x 3 = 6 secs)		2	2 (In increments of 3 secs up to 27 secs)
SILENCE DISCONNECT	* 64		"64 is n, please enter command"
n x 20 secs (eg. 6 x 20 = 120 secs)		6	6 (In increments of 20 secs up to 180 secs)
0 = unlimited (4 hrs)		0	0
CALL TIME LIMIT	* 65		"65 is n, please enter command"
n x 5 mins (eg. 3 x 5 = 15 mins)		3	3 (In increments of 5 mins up to 45 mins)
0 = unlimited (4 hrs)		0	0
DECADIC (PULSE) DETECTION	* 66		"66 is n, please enter command"
No		1	1
<u>Yes</u>		<u>2</u>	<u>2</u>
SPARE	* 67		"67 is n, please enter command"
Not currently used		0	0
ANSWER DETECT MODE FOR CALL CONNECTION	* 68		"68 is n, please enter command"
<u>Connect on speech (preferred)</u>		<u>1</u>	<u>1</u>
Connect on cessation of ring tone		2	2
Dial and connect		3	3
AUTO REDIAL	* 69		"69 is n, please enter command"
<u>Redial if diversion number is busy</u>		<u>1</u>	<u>1</u>
Connect if diversion number is busy		2	2

---

DIAL TONE DETECT	* 70		"70 is n, please enter command"
<u>5 sec wait for dial tone</u>		<u>1</u>	<u>1</u>
<u>and re-loop if none</u>		<u>2</u>	<u>2</u>
3 sec wait for dial tone (blind dial)		2	2
Band width limited dial tone detect		3	3
CONTINUOUS TONE DISCONNECT	* 71		"71 is n, please enter command"
<u>Keep connection on continuous tone</u>		<u>1</u>	<u>1</u>
Disconnect on continuous tone		2	2
LINE TEST FOR DISCONNECTION	* 72		"72 is n, please enter command"
Loop break every 10 seconds of silence		1	1
<u>No loop break</u>		<u>2</u>	<u>2</u>
TIME BETWEEN TRIES (2 No TRY)	* 73		"73 is n, please enter command"
n x 6 secs (eg. 4 x 6 = 24 secs)		4	4 (In increments of 6 secs up to 54 secs)
SPARE	* 74		"74 is n, please enter command"
Not currently used		0	0
CALL PROGRESS TEST NUMBERS	* 75		"75 is n, please enter command"
<u>Off</u>		<u>1</u>	<u>1</u>
On		2	2
CPC (LOOP CURRENT LOSS DETECT)	* 76		"76 is n, please enter command"
Yes - for connect and disconnect		1	1
No		2	2
<u>Yes - for disconnect only</u>		<u>3</u>	<u>3</u>
Yes - for connect only		4	4
ERROR MESSAGE NUMBERS	* 77		"77 is n, please enter command"
<u>Off</u>		<u>1</u>	<u>1</u>
On		2	2
PHASE LOCK LOOP DECODER	* 78		"78 is n, please enter command"
On		1	1
<u>Off</u>		<u>2</u>	<u>2</u>
BUSY COUNTER FOR DISCONNECTION*	* 79		"79 is n, please enter command"
1-8 bursts		7	7
MAX. RING CURRENT INTERVAL	* 80		"80 is n, please enter command"
1-8 Seconds		4	4
RANDOM BUSY DETECT	* 81		"81 is n, please enter command"
<u>Yes</u>		<u>1</u>	<u>1</u>
No		2	2
HOOK FLASH	* 82		"82 is n, please enter command"
<u>100 ms</u>		<u>1</u>	<u>1</u>
250 ms		2	2
500 ms		3	3
1000 ms		4	4
SCREENED CALL DIVERSION	* 83		"83 is n, please enter command"
<u>Off</u>		<u>1</u>	<u>1</u>
On		2	2

---

---

(\* 67 7096 12 # sets all options to the factory default, Extender responds "*Thank you, please enter command*". Take care not to unintentionally enter this command !!!)

Note: factory presets are Underlined. These can and should be changed to suit the application.

## AMPLIFIER CODES

Using either the MASTERCALL Keypad or by Remote Control, enter Amplifier access code \* 67 05 #, listen for "*Please enter command*"

### COMMANDS

\* nn where nn is tone parameter code number

nnn = entry

# = scroll down to next tone parameter

\* \* = abandon (do not save any changes)

\* # = store (save any changes)

After either storing or abandoning program changes you can continue to make other programming changes, press # # to end, or simply hang up.

---

### AUSTRALIA

TONE PARAMETER	CODE	DEFAULT VALUE ENTRY	PERIOD (ms)		RESPONSE
			ACTUAL	NOMINAL	
DTMF Tx GAIN (range 001 - 020, 000 = Off)	* 17	010	N/A	N/A	"17 is nnn, enter command"
OUTPUT LEVEL LINE 2 ('OUT') (range 034 - 063)	* 27	052	N/A	N/A	"27 is nnn, enter command"
OUTPUT LEVEL LINE 1 ('IN') (range 034 - 063)	* 28	052	N/A	N/A	"28 is nnn, enter command"
DUPLEX GAIN (range 20 - 40)	* 29	038	N/A	N/A	"29 is nnn, enter command"
AGC OUTPUT LEVEL (000 = off, range 060 - 100)	* 30	000	N/A	N/A	"30 is nnn, enter command"

---

## SECTION 4 - GENERAL

### PROGRAMMING SUMMARY

Access to Remote Programming	### 1
Diversion Activate/deactivate	1
Check first diversion number	2 #
Check second diversion number	5 #
Change first diversion number	2 nnn nnnn #
Change second diversion number	5 nnn nnnn #
Enter hash (#)	# #
Enter star (*)	* *
Enter dialling pause	* #
Check call counter	3
Reset call counter	3 *
Check second call counter	6
Reset second call counter	6 *
Deactivate diversion announcement to caller 70	
Activate diversion announcement to caller	71
Activate personalised announcement	72
Confirm announcement status (review)	74 (By remote only)
Record personalised announcement	75 ... # (By remote only)
Deactivate ID announcement/tone	80
Activate ID announcement	81
Activate personalised ID announcement	82
Activate and enter ID tone	83 nnn...#
Confirm ID status (review)	84 (By remote only)
Record personalised ID announcement	85 (By remote only)
Battery off (If fitted)	# 2288 #
EPROM version number	* 48 #
Hook flash	***
'IN' Line release	###
Reloop	***
Hang up both lines	### 9
Enable keypad	* 3333 #
Disable keypad	# 3333 #
Store or change PIN	* # pppp... #
Access to system options	* 67 03 #
Access to tone detect and amplifier parameters	* 67 05 #
Access to factory options	* 67 7096 50 #
Master Reset Extender	* 67 7096 12 # (CAUTION)
End	# #



---

## SPECIFICATIONS

### AMPLIFIER

Frequency Range	300 Hz to 3.4 kHz (-3dB).
Input - Output Impedance	220 ohm + 120 nF // 820 ohm (complex).
Return Loss	> 17 dB, 300 Hz to 3400 Hz.
Insertion Gain	20 dB $\pm$ 2 dB maximum.
Output Level	-10 dBm $\rightarrow$ 0 dBm programmable.
Noise	< -50 dBm unweighted, 300 Hz to 3.4 kHz.
Method of operation	Software controlled AGC with noise discrimination.

### CONTROL LOGIC

Processor	Motorola 6809.
Random Access Memory	8K static.
Program Memory	32K byte EPROM.
Interface	8 bit latched data.
Permanent Number, Status & Option Storage	Electrically Erasable Programmable Read Only Memory (EEPROM).
Dialling Pulse (Decadic)	Electronic, controlled by processor. 10 pps. 34/66 Mark/Space ratio.
Tone (DTMF)	Electronic, controlled by processor. 70 ms on, 70 ms off.
Number Storage	1 or 2 phone numbers of up to 20 digits each (local, STD or IDD calls), programmable from Keypad or remotely by telephone.
Displays	Single digit 14mm 7 segment LED. Power On LED (Red). Divert On LED (Green).
Controls	12 button keypad.

### VOICE ANNOUNCEMENTS

Voice Announcements	
Storage medium	EPROM.
Recording method	32K bit/sec ADPCM.
Personalised Voice Announcements (Optional)	
Storage medium	Linear EEPROM.
Recording method	Time sampled at 8 kHz.
Record time	Up to 16 seconds x 2.

### DETECTORS

Activity (Call Progress) detector	
Sensitivity	Software adjustable.
DTMF detector	
Sensitivity	> -40 dB.
Detect time	> 40 ms.
Dial Tone detector	
Frequency range	380 Hz - 550 Hz.
Sensitivity	> 50 mV.

---

GENERAL

Power Input	12 → 48 V dc.
Power Consumption	Standby, 30mA (350 mW). Operating, 450 mA @ 12V (5.4W) nominal.
Remote Control	'Touch Tone' DTMF telephone or encoder, with Talk-back.
Telecom Connection	Mode 1 (parallel) or mode 3.
Desk Top Enclosure	Dulux Charcoal powder coated, metal enclosure.
Dimensions	W 350 mm x D 240 mm x H 25 → 60 mm.
Rack Mount Enclosure	Dulux Charcoal powder coated, metal enclosure.
Dimensions	19" rack mount, W 483 mm x D 251 mm x H 44 mm.
Packed Weight	3 kg.
AUSTEL Permit Number	A94/05/0234
ACA Supplier Code	N468

Firmware Storage Medium	EPROM
System Number	V9935301
Speech Number	V4808.01

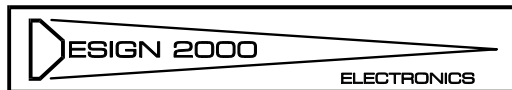
Please note: Specifications are subject to change.



**MASTERCALL MC-4044 SERIES 5**

**TEST LINE EXTENDER**

DESIGNED AND MANUFACTURED BY



**DESIGN TWO THOUSAND PTY LTD**

TELEPHONE 03 9758 5933  
FACSIMILE 03 9758 5560

MADE IN AUSTRALIA