



EWS 5150PA

Emergency Warning System



ACMA Supplier's Code N468

ISO9001 Certified

Blast Tone Generator - PA Version

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EMERGENCY WARNING SYSTEM

MODEL EW-5150PA Blast Tone Generator

DESCRIPTION & USER INSTRUCTIONS

The EW-5150 is an Emergency Warning System (EWS) for any workplace.

In the Minerals and Energy Sector, it is referred to as a Blast Tone Generator that plays a warning tone over a PA system prior to the commencement of blasting at mine sites.









A mining operator can page a radio with a latching output which triggers the External Alarm Input function, activating the Emergency Warning System blast tone. You can also use a latching switch to start and stop the blast tone.

By default the EWS, when triggered by a latching switch, will transmit a two-tone warning for 10 seconds. The default two-tone warning alert consists of alternating frequencies of 700 Hz & 420 Hz each of 500 ms duration. The EWS then stops transmitting for 20 seconds before transmitting the two-tone alert again.

This sequence is repeated until manually cancelled by turning off the switch, or automatically after the Master Timer of 10 minutes (programmable) expires.

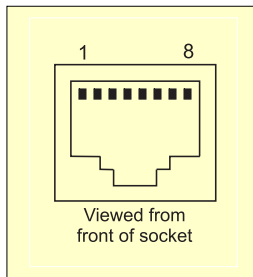
The EWS can also play a routine awareness/comfort tone that lets miners know they are within earshot.

The EWS has its own internal Homepage. Using a Web browser, authorized installers and operators can change various operational parameters and these include:

-  DHCP
-  Email Alerts
-  Delay/interval between Warning (Blast) Tone transmissions
-  Total master timer for Warning (Blast) Tone cycle
-  Awareness Tone timer (Setting 0 = off)
-  Warning Tone volume level

ETHERNET COMMS

On the EW-5150 back panel is an Ethernet jack which is the TCP/IP interface to the LAN/WAN and the Internet. A standard CAT5 patch cable (supplied) is used to connect the EW-5150 to an Ethernet Switch, Router or Broadband modem.



PIN	DESCRIPTION
1	TXD + Pair 3 (T568A)
2	TXD - Pair 3(T568A)
3	RXD+ Pair 2 (T568A)
4	Not connected
5	Not connected
6	RXD- Pair 2 (T568A)
7	Not connected
8	Not connected

Changing the Warning Tone and Awareness Tone files using an External Card Reader

The SD Card can be ejected from the EW-5150 by applying gentle pressure, causing it to pop out of the slot. It can then be inserted into a Card reader and be seen as a mass storage device. New MP3 files can simply be 'dragged' across to the Card but you will need to **erase existing files by re-formatting the card as a FAT or FAT16 file system (NOT FAT32)** before new files are 'dragged and dropped' within Windows. You must also copy 1.mp3 first, then 2.mp3.

Notes:

- Files **must** be named as follows:
 1. Awareness Tone: 1.mp3
 2. Alarm Tone: 2.mp3
- It is highly recommended that MP3 recordings have their volume normalized to 96.0 using the MP3Gain freeware program.
- The MP3 files can be voice announcements rather than tones, or a combination.
- SD Cards are 'hot swappable'. There is no need to remove power from the EW-5150. Playing automatically commences when another loaded SD Card is inserted and an Alarm call is received.

Configuration over the Local Area Network

The integrated Homepage Control Panel allows you to configure your DHCP, Username, Password and other settings. This internal configuration can only be done on your LAN.

Launch your Internet Browser and enter Browser Config Address WX[serial number] eg. WX1514. You'll find the Browser Config Address (NetBIOS name) on the base of your EW-5150. The internal Homepage control panel will appear (see next page):



Firmware Version: v1.00 Firmware Build Date: Feb 05 2010 19:45:42

Network Settings

DHCP:	<input checked="" type="checkbox"/> Enabled	Usually enabled. Only disable this option if you need to assign a fixed IP. Your hostname is: WAVECUBE
IP Address:	<input type="text" value="192.168.1.8"/>	Be careful to set this to a valid network IP or you may lose connection.
Subnet Mask:	<input type="text" value="255.255.255.0"/>	Usually 255.255.0.0 or 255.255.255.0
Gateway:	<input type="text" value="192.168.1.1"/>	Usually your router's IP (eg. 192.168.0.1)
MAC Address:	<input type="text" value="00:50:C2:7B:80:00"/>	The last two bytes of MAC are automatically derived from the Serial No.
Serial Number:	<input type="text" value="0"/>	The Serial No. is preset at the factory and cannot be changed.

Server Settings

Email Alerts:	<input type="checkbox"/> Enabled	Enable this option to allow the Wavecube to send alert e-mails.
Email Address:	<input type="text"/>	Email address for alerts. (35 chars max)
Email Server:	<input type="text" value="www.wavecube.com"/>	This is the email server. (eg. mail.wavecube.com) (35 chars max)
Server Username:	<input type="text"/>	This is your server Username. (35 chars max)
Server Password:	<input type="text"/>	This is your server Password. (20 chars max)
Server Port:	<input type="text" value="25"/>	Usually 25. Do not change this without good reason.

Alarm Settings

Alarm Repeat Delay:	<input type="text" value="20"/>	Seconds between alarm repeats (default: 20)
Total Alarm Time:	<input type="text" value="10"/>	Total alarm time in minutes (default: 10)
Awareness Tone Repeat Delay:	<input type="text" value="120"/>	Seconds between awareness tone repeats (default: 120)
Channel Activity Silence Time:	<input type="text" value="7"/>	Seconds of silence required before alarm can sound (default: 7)
Retry Timeout:	<input type="text" value="2"/>	Minutes to retry to play alarm before sending failure email (default: 2)

http://wavecube/ (1 of 2) [30/04/2010 2:05:25 PM]
Wavecube Configuration System

Sound Settings

Volume:	<input type="text" value="8"/>	This is the sound level of your Wavecube. Enter a value in the range of 1 (softest) to 10 (loudest).
----------------	--------------------------------	--

Security Settings

Password:	<input type="text"/>	Enter a case-sensitive password (10 digits max) used to access this configuration page. It can be upper and lowercase letters and numbers. Leave blank for no password. When requested, enter this password and the username "admin".
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Save Changes & Reboot Wavecube

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Check the appropriate boxes and set the required parameters then click on 'Save Changes & Reboot'.

EWS AUTO-MAILER EMAIL SUCCESS NOTIFICATION

Whenever the EWS sends a blast tone, it can send and an alert email to the email address set in the configuration system:

Eg. "EWS Wavcube X-Stream serial no.1514 (IP:114.77.102.19) delivered message 2.mp3 (blast tone) on Thursday, November 10, 2009 at 1:15PM.
Input 1 (ALARM) is Low (active).
Output 1 (PTT) is High (active).
Volume is set to 8.
Note: This is an auto-generated email and cannot be replied to."

CONNECTION

EXTERNAL CONTROL OF THE BLAST TONE

Connections between the External Control connector on the EW-5150 and the controlling device are listed in the table below:

Signal Description	EW-5150 Isolated Audio & External Control	Controlling Device	Notes
Analogue ground	3	7	
Isolated audio out to PA	4	2	Isolated
N/C	1		
N/C	2	4	
3V3 Output	3	3	Active high
Alarm Input	4	5	Switch to Ground to start
Digital Ground	5	8	
EW-5150 power	2.1mm concentric		12Vdc 350mA plug pack (centre +ve)
STEREO audio out to PA	3.5mm TRS connector		Line level audio (1V p-p)

Activating the Blast Tone

For the blast tone to sound, pin 4 of the External Control connector must be shorted to pin 5 (Ground). Removing the short will stop the blast tone from playing. A latching switch can be used for the activation and deactivation of the blast tone.

FRONT PANEL INDICATORS



Power

The red **POWER** LED indicates that 12Vdc, 350mA power is connected.

Play

The green **PLAY** LED indicates that the file(s) on the SD Card are currently playing. When the SD Card is ejected, this LED will flash.

Steady: An SD Card is inserted and an MP3 audio file is playing.
Slow flash: No SD Card is inserted.

Load

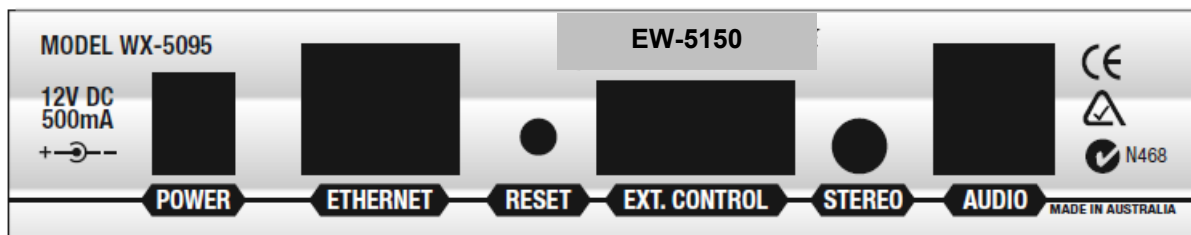
The yellow **LOAD** LED indicates that the EW-5150 is in the process of downloading a new MP3 file from wavecube.com. When the SD Card is ejected, this LED will flash.

On: A new MP3 file is downloading & being written to the SD Card (future feature).
Off: An SD Card is inserted and an MP3 audio file is playing.
Slow flash: No SD Card is inserted.

SD Card Slot backlight

The blue LED backlight glows steadily to indicate the proper insertion of a FAT16 (FAT) formatted SD Card.

REAR PANEL CONNECTIONS



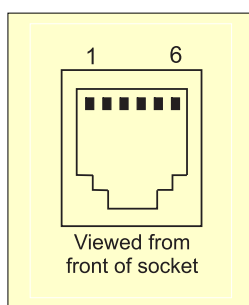
3.1 Power

The EW-5150 runs from a 12Vdc power source. It draws less than 300mA . As standard, the unit is supplied with an approved 240Vac / 12Vdc, 350mA power adaptor with a concentric dc power plug, 2.1mm centre pin positive.

3.2 Audio Out

The isolated audio is output on the RJ12 jack for connection to the Public Address (PA) amplifier. The default output is around 500mV p-p however this can be adjusted on the EW-5150 web page. There is an inbuilt Line Isolation Unit (LIU) so there is no need to have an external LIU.

Audio Feed – use the RJ12 jack with the inbuilt LIU. It sends isolated mono (or stereo combined to mono) audio.



PIN	DESCRIPTION
1	Not connected
2	Not connected
3	Ring (Lb) – Sleeve, ground return
4	Tip (La) – Signal, left & right audio mixed to mono
5	Not connected
6	Not connected

You may also connect the STEREO audio out to a line input of a PA amplifier.

MP3 VOLUME NORMALIZATION

MP3 files should be 'normalized' prior to uploading. This is to maintain consistent output levels. An MP3 normalization program called MP3Gain is recommended for this purpose. It is freeware however it would be appreciated if you made a donation to the authors:

Download page:

<http://mp3gain.sourceforge.net/download.php>

Direct link to download current version:

http://optusnet.dl.sourceforge.net/sourceforge/mp3gain/mp3gain-win-1_2_5.exe

Tip! Use the setting 'Volume 96.0' when applying track gain to MP3 files. Use 'Track Gain' rather than 'Constant Gain'.

EW-5150PA SPECIFICATIONS



Indicators

Displays Power LED (Red), Load LED (Yellow), Play LED (Green), SD card slot backlight (Blue).

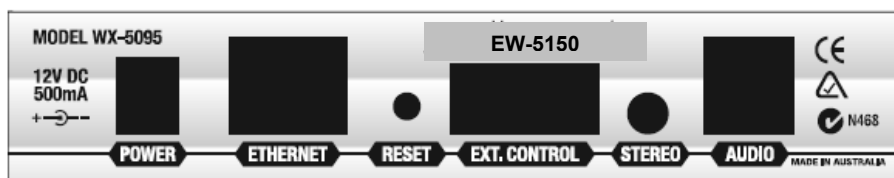
Message Upload/Playback

Message upload	PC Card reader.
MP3 decoder	MPEG-1 Audio Layer 3 (ISO11172-3), supports MPEG 1 & 2 and 2.5 extensions.
Sample & bits rates	Mono or stereo.
MP3 Encode Rate	8 kbits/s to 320 kbits/s CBR (Constant Bit Rate), supports VBR (Variable Bit Rate) to a peak of 320 kbits/s.
Recommended MP3 bit rates	64 kbits/s mono for messages, ≥ 128 kbits/s for music.
Upper pass band	10 kHz.
Message retention	> 100 years.
Upload cycles	> 100, 000 writes to any one memory cell.
Read cycles	Unlimited.
Messages length	SD/MMC Card dependent, encode rate dependent.
Memory Card support	SD or MMC up to 1GB capacity, FAT16 (FAT) file system format.

Processor

Type	PIC18F97J60
Processor Speed	25 MHz XTAL, internally multiplied to 41.667 MHz.
On Board RAM	3.7KB.
On Board Ethernet Buffer	8KB.
On Board FLASH	128KB.
External EEPROM for settings and internal web page storage	32KB.

Back



Analogue Audio Out

Audio Out connectors	3.5 mm stereo phone jack for headphones/line out RJ-12 6P2C socket (isolated) for PA
Output level	< 2V p-p, 1V p-p default (software adjustable)
Frequency range	40 Hz \rightarrow 10 kHz (on stereo connector) 300 Hz \rightarrow 3.4 kHz (on isolated audio socket)

Data Communication

Ethernet 10Mbps

External Control

Pin 1 N/C

Pin 2 N/C

Pin 3 Output for PTT, 3V3 active high

Pin 4 Input for Blast tone start/stop, active low (short to pin 5 Ground)

Pin 5 Ground

General

Operating Environment

Operating Temperature Range	-10 → +60 ° C
Storage Temperature Range	-20 → 80 ° C ambient
Humidity, Storage and Operating	To 98% non-condensing
Mean Time Between Failure	> 20 years
Safety	Complies with AS/NZS 60950
EMC	Complies with AS/NZS CISPR22
ACMA Supplier's Code Number	N468
Warranty	Two years

Firmware

D2K Ref.: V99524

PART NUMBERS

EW-5150PA	EWS Unit (Blast Tone Generator)
CA-5154MTM	Prewired Interface Cable for MTM700/MTM800 Motorola TETRA Radio
CA-5154XTL	Prewired Interface Cable for XTL2500/5000 Motorola P25 Radio

Designed and Manufactured in Australia



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