blastweb

TABLE OF CONTENTS

1 USERS OF THIS MANUAL 4

1.1. Purpose of this manual 4

1.2. End User 4

   1.2.1. Requirements 4

1.3. Training 4

1.4. Information 4

2 4G BCU SYSTEM PRODUCT SAFETY 5

2.1. DetNet Safety Philosophy 5

2.2. User Safety 5

2.3. Transportation, Storage and Handling 5

2.4. Maintenance Schedule 5

2.5. Information in case of emergency 5

2.6. Warning, Caution, and Note Statements 6

2.7. RF compliance - FCC (USA) and ICES (Canada) 6

   2.7.1. Unauthorised Changes 6

   2.7.2. Radio Interference 7

   2.7.3. FCC Class A digital device notice 7

   2.7.4. Labelling Requirements for the Host device 7

   2.7.5. CAN ICES-3 (A) / NMB-3 (A) 7

2.8. DISCLAIMER 8

2.9. Pre-requisites 8

3 SAVING LOGS 9

4 CLEAR LOGS 11

6 DATE AND TIME 14

7 SYSTEM DIAGNOSTICS 16

8 CHANGE DEBUG PASSWORD 17

9 CHANGE BCU MODE 18

10 BCU SETTINGS (OR INFORMATION) 19

10.1. Change IP Address 20

10.2. Change Mac Address 22

10.3. Change Box ID 23

1   USERS OF THIS MANUAL

DetNet endeavours to upgrade BlastWeb software annually to comply with new challenges and needs faced by Centralized Blasting users in the market. As new software becomes available, the DetNet version control policy requires that all control equipment be upgraded to ensure support is provided on the latest software version installed on Surface Blast Controllers as deployed on customer sites. This manual details the operation of the DigiShot Underground™ BCU System

1.1.   Purpose of this manual

The purpose of this manual is to provide a guideline explaining the use of the BCU 4G DEBUG Menu functions on the Blast Control Unit (BCU).

⚠️ NOTE	**This manual is only to be used for the 4G BCU System and the applicable software version as displayed.**

1.2.   End User

1.2.1. Requirements

- Only trained personnel, and personnel found competent, are allowed to operate the system.
- Users of the system shall be aware of the recommended procedures for using the BlastWeb BCU System as per manufacturer's recommendations.
- These recommendations do not supersede the method as required by local mine, explosives or statutory regulations/procedures/codes of practise regarding the use of detonators. In such cases, the MOST STRINGENT set of rules between the mine, explosives or local regulations/procedures/codes of practise and the manufacturer must be followed.

1.3.   Training

Training and software upgrades shall only be performed by a DetNet SA subject matter expert.
Contact the DetNet head office for additional information.

⚠️ WARNING	**ALL USERS OPERATING THE BCU SYSTEM SHALL HAVE SUCCESSFULLY COMPLETED THE SPECIFIC TRAINING BEFORE PERFORMING ANY WORK WITH THE DEVICE(S).**

1.4.   Information

Refer to http://www.detnet.com/ for additional detail and documentation.

2   4G BCU SYSTEM PRODUCT SAFETY

> ⚠️ **WARNING** — **ELECTRONIC DETONATORS ARE TOTALLY DIFFERENT TO CONVENTIONAL ELECTRIC DETONATORS AND ABSOLUTELY NO CONNECTION WITH CONVENTIONAL ELECTRIC DETONATORS OR ANY OTHER ELECTRONIC DETONATORS IS POSSIBLE AS IT CAN LEAD TO UNINTENDED INITIATION. ALL USERS OPERATING THE ELECTRONIC INITIATION SYSTEM SHALL HAVE SUCCESSFULLY COMPLETED THE SPECIFIC TRAINING BEFORE PERFORMING ANY WORK WITH THE DEVICE(S). DO NOT USE ANY DEVICES OTHER THAN THOSE SPECIALLY DESIGNED FOR THIS TYPE OF ELECTRONIC DETONATOR.**

2.1.   DetNet Safety Philosophy

DetNet safety philosophy is to design, manufacture and provide control equipment, detonators and accessories to the highest safety standards.

- All products will fail to safe
- BlasttKeys remains in possession of the accountable person, and should only be used to authorize the blast process at such a time as stipulated by the Mine after completion of the required Risk Assessment.
- All products must conform to local and international standards before it is sold for use.
- DetNet complies to ISO 9001, SANS 551:2009, CEN/TS 13763-27 which is acceptable to countries we operate in; in countries not subscribing to the above marks, we advise users to engage with DetNet to ensure that all equipment comply to local regulations.

2.2.   User Safety

Safety is ensured when the user supplements the product's in-built safety systems through adequate training in the safe use of the product:

- Induction training
- Refresher training

DetNet continuously upgrades software to make our products more user friendly and to ensure that users stay abreast on latest developments, it is important that users get trained on the relevant changes before their equipment is updated.

2.3.   Transportation, Storage and Handling

BCU System equipment must be transported, stored, handled and used in conformity with all federal, state, provincial and local laws and regulations. Control equipment and accessories should be handled with due care and not dropped, mishandled, subjected to excessive vibration or exposed to any chemical agents. Connectors should be kept clean and the equipment must be kept in a safe environment to avoid misappropriation or misuse.

2.4.   Maintenance Schedule

All equipment in the field will need to be returned to DetNet, or its repair centres, for service at the following intervals:

- Handheld Equipment (Tagger, etc.) – 18 Months.
- Other equipment (Excluding accessories) – 24 Months.

2.5.   Information in case of emergency

Refer to http://www.detnet.com/ for additional detail and documentation.

2.6.   Warning, Caution, and Note Statements

WARNING, *CAUTION*, and *NOTE* statements are used throughout this manual to emphasise important and critical information. Observe these statements to ensure safety and to prevent product damage. The statements are *defined as follows:*

 A WARNING MEANS THAT INJURY OR DEATH IS POSSIBLE IF THE INSTRUCTIONS ARE NOT OBEYED.

Warnings draw special attention to anything that could injure or kill the reader/user. *Warnings* are generally placed before the step in the procedure they relate to. Warning messages are repeated wherever they apply.

 A CAUTION MEANS THAT DAMAGE TO EQUIPMENT IS POSSIBLE.

Cautions draw special attention to anything that could damage equipment or cause the loss of data and will normally describe what could happen if the caution is ignored. *Cautions* are generally placed before the step in the procedure they relate to.

 Notes are added to provide additional information.

Notes are used to emphasise important information by visually distinguishing this from the rest of the text. Notes can contain any type of information except safety information, which is always placed in cautions or warnings.

Refer to http://www.detnet.com/ for additional detail and documentation.

2.7.   RF compliance - FCC (USA) and ICES (Canada)

2.7.1. Unauthorised Changes

DetNet South Africa has not approved any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the equipment.

DetNet South Africa *n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peuvent annuler le droit d'utilisation de l'appareil par l'utilisateur.*

2.7.2. Radio Interference

This device complies with Part 15 of the FCC Rules and Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

2.7.3. FCC Class A digital device notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment operated in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

2.7.4. Labelling Requirements for the Host device

The host device shall be properly labelled to identify the modules within the host device. The certification label of the module shall be clearly visible at all times when installed in the host device, otherwise the host device must be labelled to display the FCC ID and IC of the module, preceded by the words "Contains transmitter module", or the word "Contains", or similar wording expressing the same meaning, as follows:
Contains FCC ID: 2ARNH-0743337A

L'appareil hôte doit être étiqueté comme il faut pour permettre l'identification des modules qui s'y trouvent. L'étiquette de certification du module donné doit être posée sur l'appareil hôte à un endroit bien en vue en tout temps. En l'absence d'étiquette, l'appareil hôte doit porter une étiquette donnant le FCC ID et le IC du module, précédé des mots « Contient un module d'émission », du mot « Contient » ou d'une formulation similaire exprimant le même sens, comme suit :
Contains IC: 24476-0743337A

2.7.5. CAN ICES-3 (A) / NMB-3 (A)

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de classe A est conforme à la norme canadienne ICES-003.

2.8. DISCLAIMER

This document forms part of the User Manual for the BlastWeb System and is considered to be confidential. This document contains restricted information for company and channel partners' application only.

Should any of the restricted information contained in this document be disclosed to any third party either intentionally or unintentionally, DetNet South Africa will not be held responsible, accountable or liable for any resulting event and or issue.

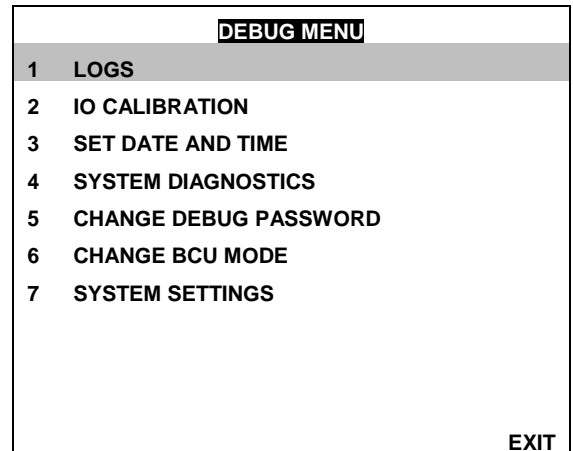| ⚠ CAUTION	THE FOLLOWING SHOULD BE BROUGHT TO THE ATTENTION OF THE PERSON RESPONSIBLE FOR MAINTAINING THE BLASTWEB AND BCU NETWORK FOR CENTRALISED BLASTING: • ATTEMPTS WILL BE MADE TO RETRIEVE SETTINGS LIKE IP ADDRESS, MAC ADDRESS, BCU ID AND BCU MODE. • IN THE EVENT THAT RECOVERY OF IP, MAC AND ID FAILS, THE BCU WILL MOST LIKELY NOT BE ABLE TO COMMUNICATE WITH THE SURFACE CONTROLLER, IN WHICH CASE THE BCU WILL REQUIRE ITS SETTINGS TO BE PHYSICALLY RESET BY USER AT THE BCU, OR REQUIRE A BOOTLOAD VIA USB. • IN ORDER TO ENSURE OPTIMAL PERFORMANCE, FIRST LOAD THE LATEST VERSION OF BLASTWEB. • IN ORDER TO RETAIN THE CURRENT BCU LAYOUT AND SETTINGS, RECORD THE IP ADDRESS, MAC ADDRESS, BOX ID AND ANY CUSTOMIZED TIMING TEMPLATES OF EACH BCU BEFORE UPGRADING THE BOOTLOADER OR THE FIRMWARE. • IF APPLICABLE, FIRST LOAD THE NEW BOOTLOADER AND DIRECTLY AFTERWARDS LOAD THE NEW FIRMWARE. • RETURN THE BCU SETUP SETTINGS FROM RECORDING MADE PRIOR TO UPGRADING. • IT IS ALWAYS THE RESPONSIBILITY OF THE USER TO ENSURE THAT SETTINGS ARE KEPT ON RECORD AND CAN BE MANUALLY RELOADED AFTER THE UPGRADE IN THE EVENT OF SETTINGS CORRUPTION. DETNET SA CANNOT BE HELD ACCOUNTABLE FOR ANY LOSS OF SETTINGS OR LOSS OF OPERATIONS DUE TO SETTINGS CORRUPTION..

2.9. Pre-requisites

- 1 x Memory stick loaded with the latest BlastWeb® Software
- PostgreSQL 9.3 shall be installed on the PC
- UTM-00308 and UTM-00314 for reference to installing and configuring BlastWeb on the Surface Blast Controller

3   SAVING LOGS

This function enables the user to save the log files onto a Flash Memory Stick.
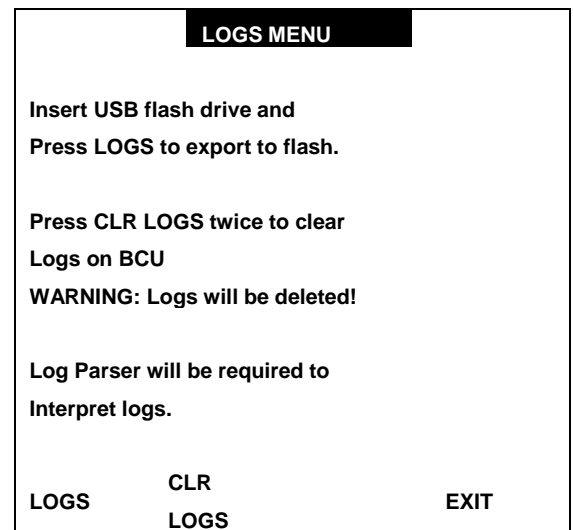
1. Display Main Menu
    - Press **DEBUG** soft key to select Debug Menu
2. Password
    - Using the numerical key pad, enter four digit password
    - Press **ENTER** to continue
3. Debug Screen
    - Press **1** on the keypad to select **LOGS**

	DEBUG MENU
1	**LOGS**
2	**IO CALIBRATION**
3	**SET DATE AND TIME**
4	**SYSTEM DIAGNOSTICS**
5	**CHANGE DEBUG PASSWORD**
6	**CHANGE BCU MODE**
7	**SYSTEM SETTINGS**
	EXIT

NOTE

Pre-requisites:

- **Flash Drive formatted in FAT32, scanned and cleared of any viruses prior to use.**
- **BCU will recognize Flash Drives up to 4GB only**
- **Only the BlastWeb Software data is allowed to be saved on this Flash Drive.**

4. Connect USB Flash Drive using a micro USB convertor cable or adapter.
    - Press LOGS Soft Key.

LOGS MENU

Insert USB flash drive and
Press LOGS to export to flash.

Press CLR LOGS twice to clear
Logs on BCU
WARNING: Logs will be deleted!

Log Parser will be required to
Interpret logs.

LOGS	**CLR LOGS**	**EXIT**

5. BCU will detect USB Flash Drive and write logs to USB Flash Drive
   - BCU will export logs to flash drive and label it as "BCU_<ID>_<DATE>_<TIME>.log"

```
CONNECTING TO THE STORAGE DEVICE
      ...




                                    EXIT
```

- Progress 100% complete, remove USB Flash Drive.

```
  CONNECTING TO STORAGE DEVICE
  FOUND STORAGE DEVICE
  WRITING TO STORAGE DEVICE

        PROGRESS : 100% COMPLETE

  DONE – FILE WRITE COMPLETE
  REMOVE FLASH DRIVE
                                    EXIT
```
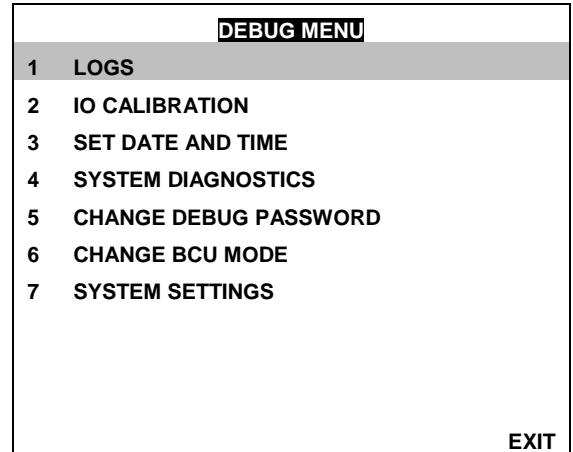
blastweb

4   CLEAR LOGS

This function enables the user to clear all logs from the unit
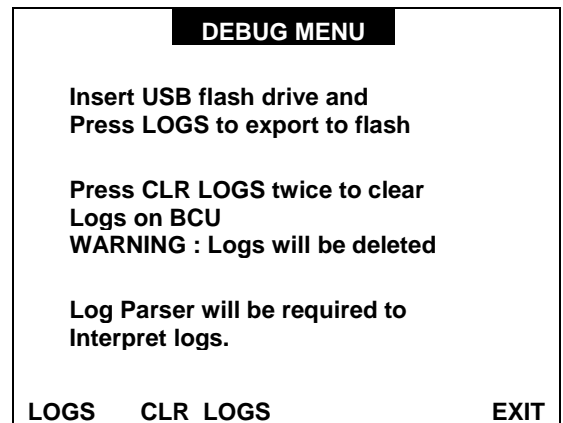
> ⚠ **CAUTION**
>
> **CLEARING LOGS WILL MAKE FAULT FINDING AND DEBUGGING OF PREVIOUS INCIDENTS IMPOSSIBLE OR VERY DIFFICULT!**

1. Display Main Menu
   - Press **DEBUG** soft key to select Debug Menu
2. Password
   - Using the numerical key pad, enter four digit password
   - Press **ENTER** to continue
3. Debug Screen
   - Press **1** on the keypad to select **LOGS**

```
            DEBUG MENU
 1   LOGS
 2   IO CALIBRATION
 3   SET DATE AND TIME
 4   SYSTEM DIAGNOSTICS
 5   CHANGE DEBUG PASSWORD
 6   CHANGE BCU MODE
 7   SYSTEM SETTINGS




                              EXIT
```

4. Debug Screen
   - Press **CLR LOGS** soft key twice to select Clear Logs option

```
            DEBUG MENU

  Insert USB flash drive and
  Press LOGS to export to flash

  Press CLR LOGS twice to clear
  Logs on BCU
  WARNING : Logs will be deleted

  Log Parser will be required to
  Interpret logs.

 LOGS    CLR  LOGS              EXIT
```

5 Calibration

This function enables the user to calibrate all leakage and current levels across the six channels.

Calibration is initially set in the factory and is used to compensate for the device-specific measurement drift due to changing environmental conditions and component tolerance. Should calibration not be possible, the BCU UI should be sent back to the manufacturer for servicing, to ensure correct leakage and current measurements.

1. Display Main Menu
   ● Press **DEBUG** soft key to select DEBUG
2. Password
   ● Using the numerical key pad, enter four digit password
   ● Press **ENTER** to continue
3. Debug Screen
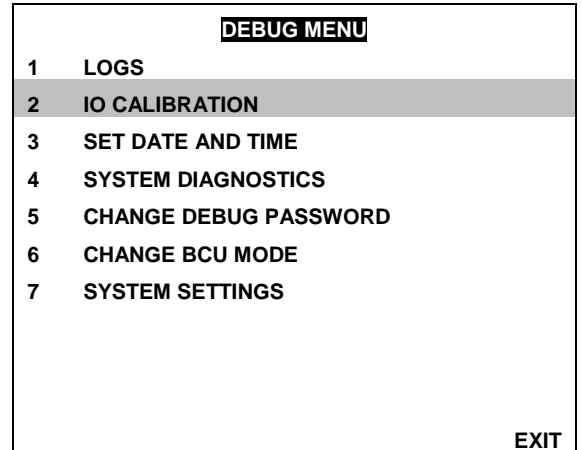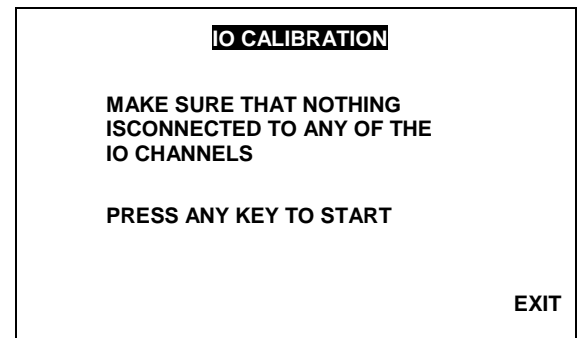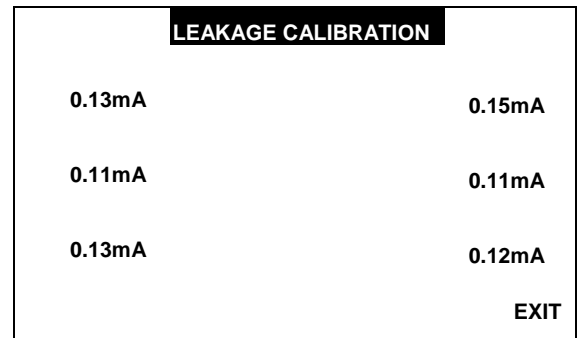   ● Press **2** on the numerical keypad to select **IO CALIBRATION**

DEBUG MENU	
1	LOGS
2	IO CALIBRATION
3	SET DATE AND TIME
4	SYSTEM DIAGNOSTICS
5	CHANGE DEBUG PASSWORD
6	CHANGE BCU MODE
7	SYSTEM SETTINGS
	EXIT

4. Screen will display message
   ● Press any key to start calibration

IO CALIBRATION

MAKE SURE THAT NOTHING ISCONNECTED TO ANY OF THE IO CHANNELS

PRESS ANY KEY TO START

EXIT

5. Leakage Calibration
   ● Leakage values will be displayed

LEAKAGE CALIBRATION

0.13mA	0.15mA
0.11mA	0.11mA
0.13mA	0.12mA
	EXIT

6. Should the leakage be too high, resulting in a failure to calibrate, a warning message will be displayed.

LEAKAGE CALIBRATION
FAIL! VALUE TOO HIGH
PRESS ANY KEY TO EXIT

7. Should the leakage be within limits, a confirmation message will be displayed.

LEAKAGE CALIBRATION
LEAKAGE CALIBRATION OK
EXIT

8. Current Calibration
    - Line Current values will be displayed

CURRENT CALIBRATION
LEAKAGE CALIBRATION OK

0.15 mA	0.17 mA
0.13 mA	0.14 mA
0.15 mA	0.15 mA
	EXIT

9. Should the current calibration be too high, resulting in a failure to calibrate, a warning message will be displayed.

CURRENT CALIBRATION
FAIL! VALUE TOO HIGH
PRESS ANY KEY TO EXIT

10. Should the leakage be within limits, a confirmation message will be displayed.

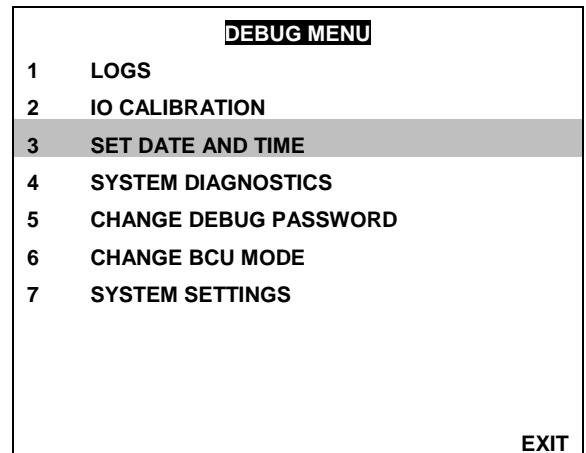| CURRENT CALIBRATION |
| --- |
| LEAKAGE CALIBRATION OK |
| CURRENT CALIBRATION OK |
| TEST DONE – ALL OK |
| PRESS ANY KEY TO EXIT |

6   DATE AND TIME

<table>
<tr>
<td>⚠ NOTE</td>
<td>Ensure that the time zone is set correctly. On V2 hardware the Date and Time settings must be checked after every power cycle! Hardware revision can be determined by selecting Option 9: System Settings, and observing the version displayed there.</td>
</tr>
</table>

This function enables the user to set the date and the time on the BCU. Date and time saved in the logs will be based on the date and time settings as saved in the BCU. Date and time will automatically be updated when BCU establishes connection with the Surface Blast Controller.

1. Display Main Menu
    ● Press **DEBUG** soft key to select DEBUG
2. Password
    ● Using the numerical key pad, enter four digit password
    ● Press **ENTER** to continue
3. Debug Screen
    ● Press **3** on the keypad to select **SET DATE AND TIME**

```
           DEBUG MENU
1   LOGS
2   IO CALIBRATION
3   SET DATE AND TIME
4   SYSTEM DIAGNOSTICS
5   CHANGE DEBUG PASSWORD
6   CHANGE BCU MODE
7   SYSTEM SETTINGS


                             EXIT
```

● Press **SET** soft key to select Set Date and Time option

```
        SET DATE AND TIME

   DATE :  26 – 02 - 2017
   TIME :  11 : 12 : 13



SET                          EXIT
```
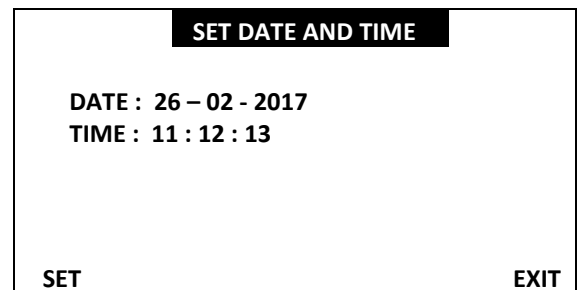
4. Set Time Screen
    ● Enter **GMT** time
        o Using the numerical key pad, enter day of the month
        o Using the numerical key pad, enter month
        o Using the numerical key pad, enter year
        o Using the numerical key pad, enter hour
        o Using the numerical key pad, enter minutes

```
        SET DATE AND TIME

   DATE :  26 – 09 - 2017
   TIME :  12 : 00 : 00


   ENTER MINUTES


   DATE :  26 – 09 – 2017


   TIME :  12 : ?



SET                          EXIT
```

blastweb

5. The time zone setting allows for a value of GMT-12 to GMT+12 in one hour increments.
   - Using the **UP** and **DOWN** soft keys, select the correct time zone
   - Press **SET** and then **ENTER** to save changes
   - Press **EXIT** soft key to exit

```
┌─────────────────────────────────────────┐
│         SET DATE AND TIME                │
│                                          │
│   DATE :  26 – 09 - 2017                 │
│   TIME :  12 : 00 : 00                   │
│                                          │
│   Use the UP and DOWN keys               │
│   to enter the time zone                 │
│                                          │
│   Press ENTER key to save                │
│                                          │
│   TIME ZONE IS :     02                  │
│                                          │
│                                          │
│  SET          UP       DOWN        EXIT  │
└─────────────────────────────────────────┘
```

6. Save
   - Press **ENTER** to save changes
   - Press **SET** soft key return to set time option.
   - Press **EXIT** soft key to exit

```
┌─────────────────────────────────────────┐
│         SET DATE AND TIME                │
│                                          │
│   DATE :  26 – 09 - 2017                 │
│   TIME :  12 : 12 : 13                   │
│                                          │
│   TIME SAVED SUCCESSFULLY                │
│                                          │
│                                          │
│  SET                               EXIT  │
└─────────────────────────────────────────┘
```

7   SYSTEM DIAGNOSTICS

This function enables the user to check internal voltages used during fault finding.

1.   Display Main Menu
   ● Press DEBUG soft key to select DEBUG
2.   Password
   ● Using the numerical key pad, enter four digit password
   ● Press **ENTER** to continue
3.   Debug Screen
   ● Press **4** on the keypad to select **SYSTEM DIAGNOSTICS**

Chrg DC input	Input charger voltage. Will be between 16V and 19V when the BCU is powered off mains
Chrg DC output	Output voltage of charger. 11.8V to 14.1V, when mains is present.
12V rail	Battery voltage 11.7V to 14.1V
10V6 rail	System voltage 10.5V to 10.8V
5V rail	5V power supply, Used to power USB 4.8V to 5.2V
3V3 rail	3.3V used to power the microcontrollers 3.1V to 3.5V
3V3 standby	Only relevant to V2 hardware. Displays the real-time clock backup power to maintain time and date settings.
Upcon V out	Blast supply voltage. Idle, value must be less than 10V. When charging detonators, value must be 28V to 31V
Maestro Mode	Mode of the main processor
PL Mode	Mode of Backup processor
Maestro Charge	The remaining time before the main processor will attempt to send the FIRE command
PL Charge	The duration that high voltage is present during blasting

DEBUG MENU

1	LOGS
2	IO CALIBRATION
3	SET DATE AND TIME
4	SYSTEM DIAGNOSTICS
5	CHANGE DEBUG PASSWORD
6	CHANGE BCU MODE
7	SYSTEM SETTINGS

EXIT

DIAGNOSTICS

|		
Chrg DC input :	0.00	V
Chrg DC output :	0.00	V
12V rail :	12.52	V
10V6 rail :	10.67	V
5V rail :	5.20	V
3V3 rail :	3.34	V
3V3 standby :	N/A	V
Upcon V out :	6.68	V
Maestro Mode :	0	
PL Mode	1	
Maestro Charge	-1	mS
PL Charge	0	S

EXIT

blastweb

8 CHANGE DEBUG PASSWORD

The BCU is protected from unauthorised use by assigning a device password. The specific password is supplied by the manufacturer.

```
                              DEBUG MENU
   1    LOGS
   2    IO CALIBRATION
   3    SET DATE AND TIME
   4    SYSTEM DIAGNOSTICS
   5    CHANGE DEBUG PASSWORD
   6    CHANGE BCU MODE
   7    SYSTEM SETTINGS



                                        EXIT
```

1. Display Main Menu
   - Press **DEBUG** soft key to select **DEBUG**
2. Password
   - Using the numerical key pad, enter four digit password
   - Press **ENTER** to continue
3. Debug Screen
   - Press **5** on the keypad to select **CHANGE DEBUG PASSWORD**
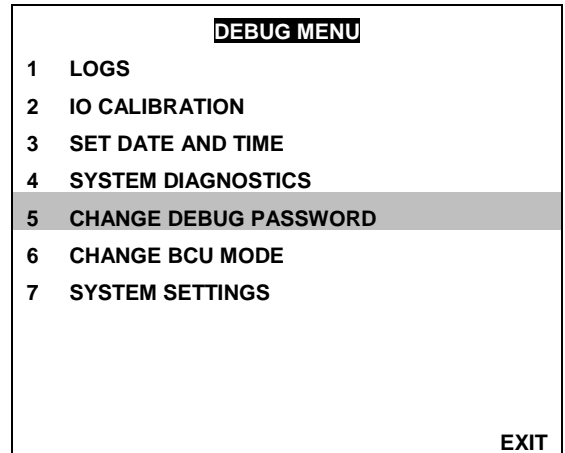
4. Password
   - Enter old password using the numerical key pad,
   - Press **ENTER** to continue
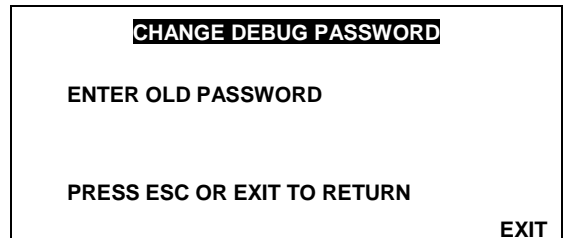
```
             CHANGE DEBUG PASSWORD

        ENTER OLD PASSWORD


        PRESS ESC OR EXIT TO RETURN
                                        EXIT
```

   - Enter new password using the numerical key pad,
   - Press **ENTER** to save new password

```
             CHANGE  DEBUG PASSWORD

        ENTER NEW PASSWORD


        PRESS ESC OR EXIT TO RETURN
                                        EXIT
```
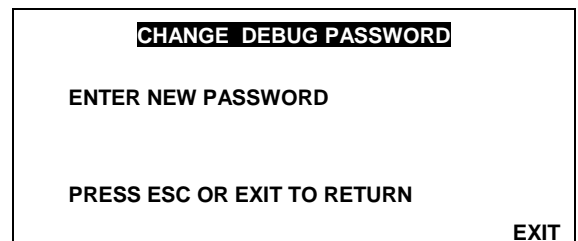
   - Enter the same new password using the numerical keypad,
   - Press **ENTER** to save new password
   - Press **EXIT** to return to Debug Menu

```
             CHANGE  DEBUG PASSWORD

        NEW PASSWORD AGAIN


        PRESS ESC OR EXIT TO RETURN
                                        EXIT
```
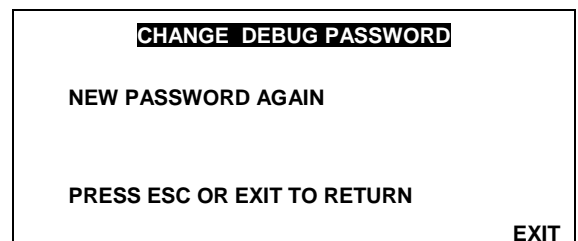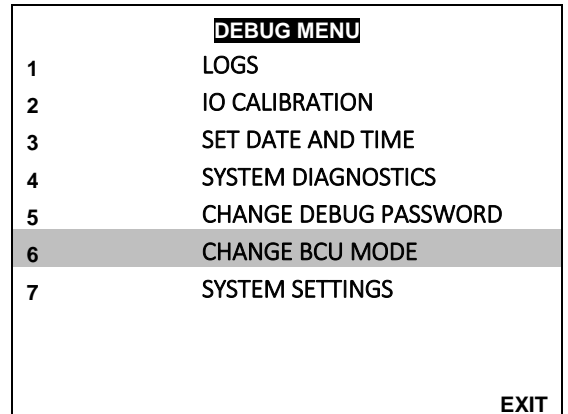
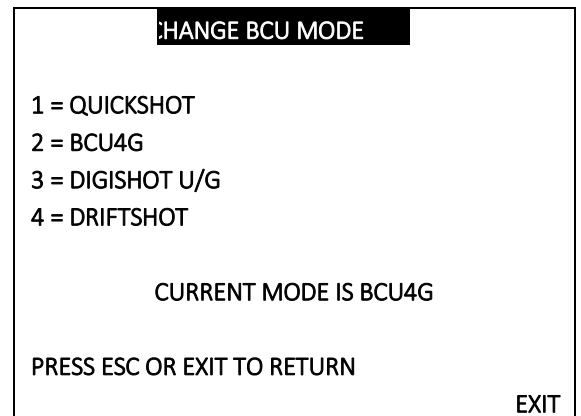| NOTE	**In the event of a user forgetting the password, the password can be reset to the default password by pressing the RESET soft key in the screen where the DEBUG MENU password is expected. This will require the user to contact DetNet Product Support in order to obtain an access code based on the number generated by the BCU. After entering the correct access code, the password will be reset.**

9   CHANGE BCU MODE

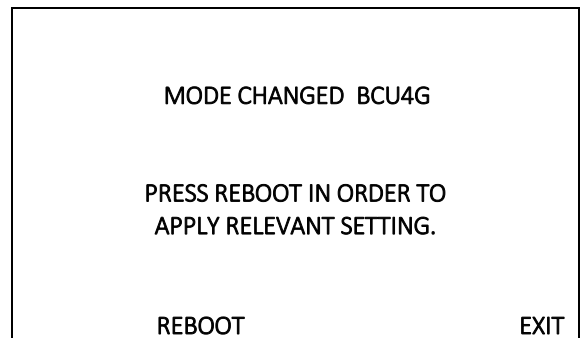This function enables the user to switch between product modes

1.   Display Main Menu
   ● Press **DEBUG** soft key to select **DEBUG**
2.   Display Debug Menu
   ● Press **MODE** soft key to select **MODE**
3.   Password
   ● Using the numerical key pad, enter four digit password
   ● Press **ENTER** to continue
4.   Change BCU mode
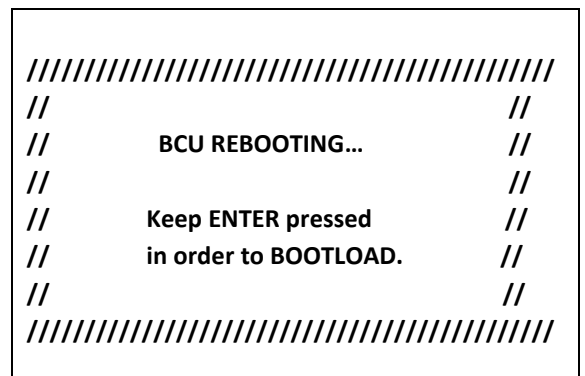   ● Press **6** on the numerical keypad to select **CHANGE BCU MODE**

	DEBUG MENU
1	LOGS
2	IO CALIBRATION
3	SET DATE AND TIME
4	SYSTEM DIAGNOSTICS
5	CHANGE DEBUG PASSWORD
6	CHANGE BCU MODE
7	SYSTEM SETTINGS
	EXIT

5.   Change BCU mode
   ● Use the numerical key pad to select mode

```
            CHANGE BCU MODE

1 = QUICKSHOT
2 = BCU4G
3 = DIGISHOT U/G
4 = DRIFTSHOT


         CURRENT MODE IS BCU4G


PRESS ESC OR EXIT TO RETURN
                              EXIT
```

6.   Restart Fixed BCU

```


         MODE CHANGED  BCU4G


      PRESS REBOOT IN ORDER TO
       APPLY RELEVANT SETTING.


   REBOOT                    EXIT
```
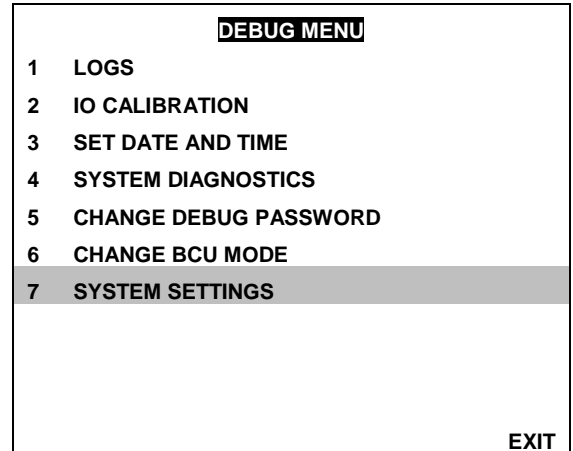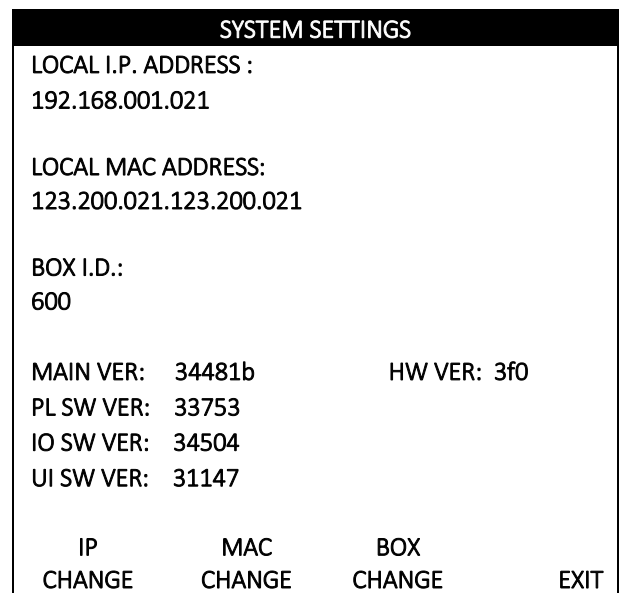
7.   Press the **REBOOT** SoftKey in order to reboot the BCU in an orderly fashion, preserving settings and preventing memory corruption

```
/////////////////////////////////////////
//                                     //
//        BCU REBOOTING...             //
//                                     //
//        Keep ENTER pressed           //
//        in order to BOOTLOAD.        //
//                                     //
/////////////////////////////////////////
```

10 BCU SETTINGS (OR INFORMATION)

This function enables the user to view the system settings

```
              DEBUG MENU
  1   LOGS
  2   IO CALIBRATION
  3   SET DATE AND TIME
  4   SYSTEM DIAGNOSTICS
  5   CHANGE DEBUG PASSWORD
  6   CHANGE BCU MODE
  7   SYSTEM SETTINGS


                                    EXIT
```

1. Display Main Menu
   ● Press **DEBUG** soft key to select **DEBUG**
2. Password
   ● Using the numerical key pad, enter four digit password
   ● Press **ENTER** to continue
   ● Press **EXIT** soft key to exit
3. Debug Screen
   ● Press **7** to select **SYSTEM SETTINGS**

4. System Settings Screen

> **NOTE**
>
> **The following screen depicts an example of the System Settings – Version numbers may be different on your display.**

- LOCAL IP ADDRESS: 192.168.001.021
- LOCAL MAC ADDRESS:123.200.021.123.200.021
- BOX ID: 600
- MAIN VER: 34481b
- HW VER: 3f0
- PL SW VER: 33753
- IO SW VER: 34504
- UI SW VER: 31147

```
                SYSTEM SETTINGS
LOCAL I.P. ADDRESS :
192.168.001.021

LOCAL MAC ADDRESS:
123.200.021.123.200.021

BOX I.D.:
600

MAIN VER:    34481b          HW VER:  3f0
PL SW VER:   33753
IO SW VER:   34504
UI SW VER:   31147

     IP          MAC          BOX
   CHANGE      CHANGE       CHANGE        EXIT
```

> **CAUTION**
>
> **BOX ID RANGE SHOULD ALWAYS BE WITHIN 257 TO 65535, IN THE EVENT THAT THE ID IS OUT OF SPECIFIED RANGE, CONTACT THE SUPPLIER.**
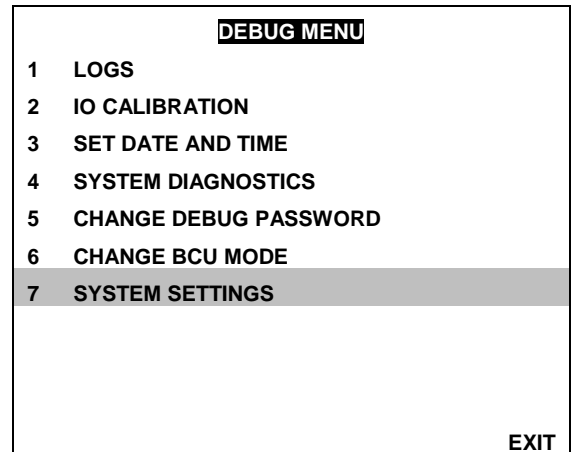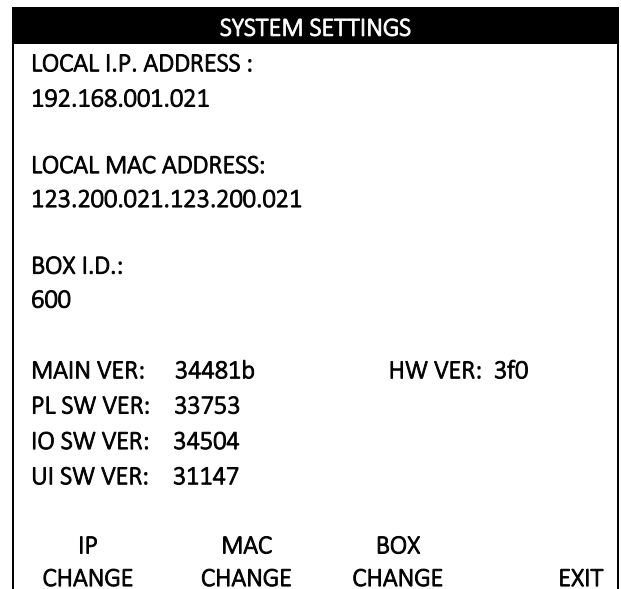
blastweb

10.1. Change IP Address

This function enables the user to change the unit's IP address

> **Never assign the same IP address to two devices.**
>
> **Always use an unassigned IP address to a device.**

1. Display Main Menu
    - Press DEBUG soft key to select **DEBUG**
2. Password
    - Using the numerical key pad, enter four digit password
    - Press **ENTER** to continue
    - Press **EXIT** soft key to exit
3. Debug Screen
    - Press **7** to select **SYSTEM SETTINGS**

```
                    DEBUG MENU

1    LOGS

2    IO CALIBRATION

3    SET DATE AND TIME

4    SYSTEM DIAGNOSTICS

5    CHANGE DEBUG PASSWORD

6    CHANGE BCU MODE

7    SYSTEM SETTINGS



                              EXIT
```

4. System Settings Screen

> **The following screen depicts an example of the System Settings – Version numbers may be different on your display.**

- Press **IP CHANGE** soft key to change the IP Address of the BCU

```
                SYSTEM SETTINGS
LOCAL I.P. ADDRESS :
192.168.001.021

LOCAL MAC ADDRESS:
123.200.021.123.200.021

BOX I.D.:
600

MAIN VER:    34481b          HW VER: 3f0
PL SW VER:   33753
IO SW VER:   34504
UI SW VER:   31147


    IP          MAC         BOX
  CHANGE      CHANGE      CHANGE        EXIT
```

blast**web**

5. Using the numerical key pad, enter new IP Address
    - Press **ACCEPT** to change IP Address
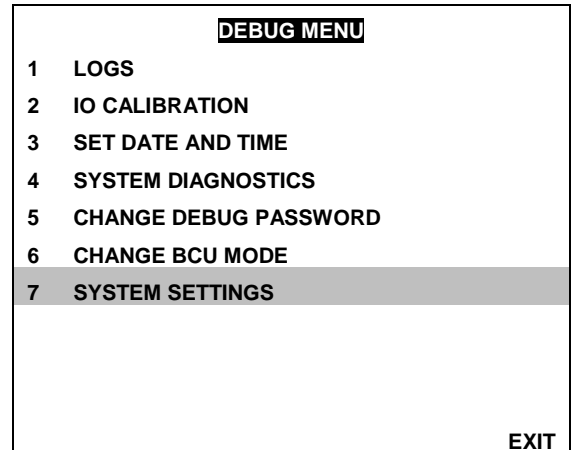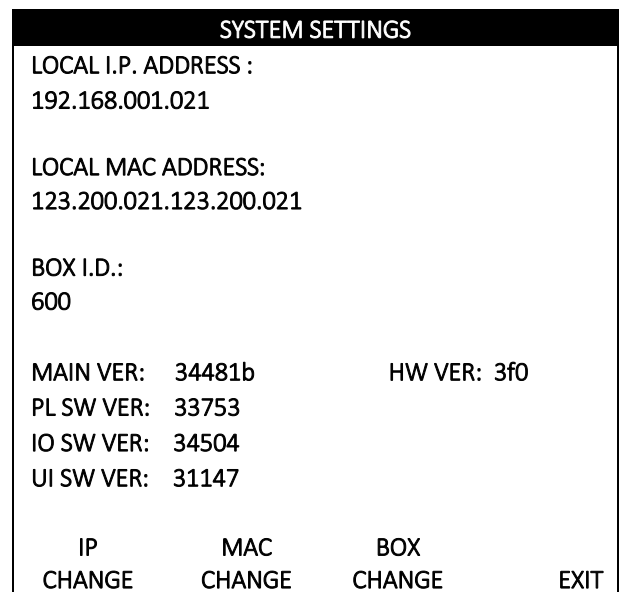   - Press **EXIT** soft key to exit

---

CHANGE IP ADDRESS

TYPE I.P. ADDRESS :
192.168.001.213

I.P. ADDRESS CHANGED

ACCEPT   EXIT

---

blastweb φ

10.2. Change Mac Address

NOTE	The MAC address is set in the factory and should never be changed in practice.
	Never assign the same MAC address to two devices.
	Always use an unassigned MAC address to a device.

1. Display Main Menu
   * Press DEBUG soft key to select DEBUG
2. Password
   * Using the numerical key pad, enter four digit password
   * Press ENTER to continue
   * Press EXIT soft key to exit
3. Debug Screen
   * Press **7** to select **SYSTEM SETTINGS**

```
                DEBUG MENU
  1    LOGS
  2    IO CALIBRATION
  3    SET DATE AND TIME
  4    SYSTEM DIAGNOSTICS
  5    CHANGE DEBUG PASSWORD
  6    CHANGE BCU MODE
  7    SYSTEM SETTINGS



                              EXIT
```

4. System Settings Screen

NOTE	The following screen depicts an example of the System Settings – Version numbers may be different on your display.

* Press MAC CHANGE soft key to change the Mac Address of the BCU

```
              SYSTEM SETTINGS
  LOCAL I.P. ADDRESS :
  192.168.001.021

  LOCAL MAC ADDRESS:
  123.200.021.123.200.021

  BOX I.D.:
  600

  MAIN VER:    34481b           HW VER:  3f0
  PL SW VER:   33753
  IO SW VER:   34504
  UI SW VER:   31147


      IP          MAC         BOX
   CHANGE      CHANGE      CHANGE         EXIT
```
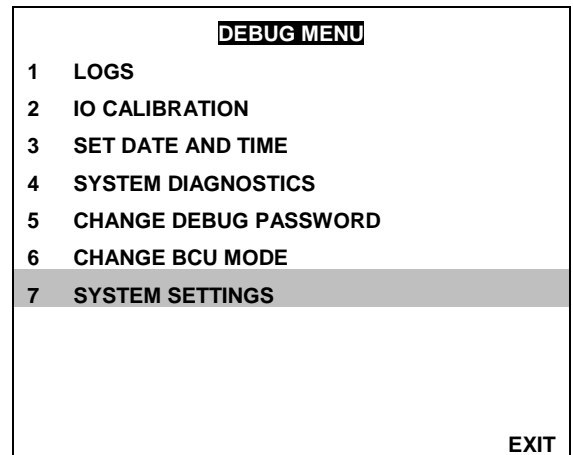
* Using the numerical key pad, enter new MAC Address
* Press **ACCEPT** to change MAC Address
* Press **EXIT** to exit screen.

```
           CHANGE MAC ADDRESS


  TYPE MAC ADDRESS :




  ACCEPT                          EXIT
```

blastweb
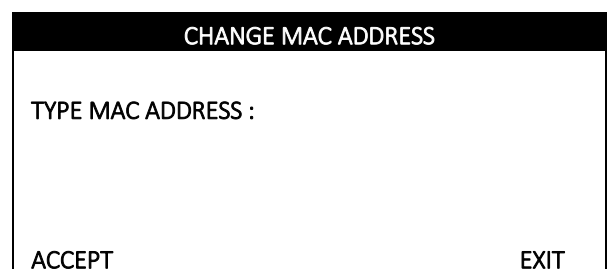
10.3. Change Box ID

This Function enables the user to change the unit's ID

1. Display Main Menu
   - Press **DEBUG** soft key to select **DEBUG**
2. Password
   - Using the numerical key pad, enter four digit password
   - Press **ENTER** to continue
   - Press **EXIT** soft key to exit
3. Debug Screen
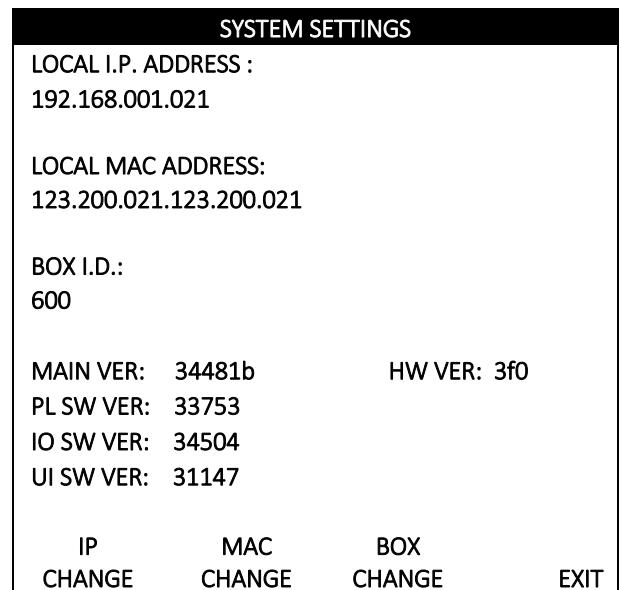   - Press **7** to select **SYSTEM SETTINGS**

```
               DEBUG MENU

  1   LOGS

  2   IO CALIBRATION

  3   SET DATE AND TIME

  4   SYSTEM DIAGNOSTICS

  5   CHANGE DEBUG PASSWORD

  6   CHANGE BCU MODE

  7   SYSTEM SETTINGS




                                    EXIT
```

4. System Settings Screen

> ⚠️ **NOTE**
>
> **The following screen depicts an example of the System Settings – Version numbers may be different on your display.**

- Press **BOX CHANGE** soft key to change the BCUs ID

```
                SYSTEM SETTINGS
LOCAL I.P. ADDRESS :
192.168.001.021

LOCAL MAC ADDRESS:
123.200.021.123.200.021

BOX I.D.:
600

MAIN VER:    34481b           HW VER:  3f0
PL SW VER:   33753
IO SW VER:   34504
UI SW VER:   31147

     IP          MAC          BOX
  CHANGE      CHANGE       CHANGE        EXIT
```

blastweb

5. Change Box ID Screen
    - Using the numerical key pad, enter new ID number for box
    - Press **ACCEPT** to change **BOX ID**
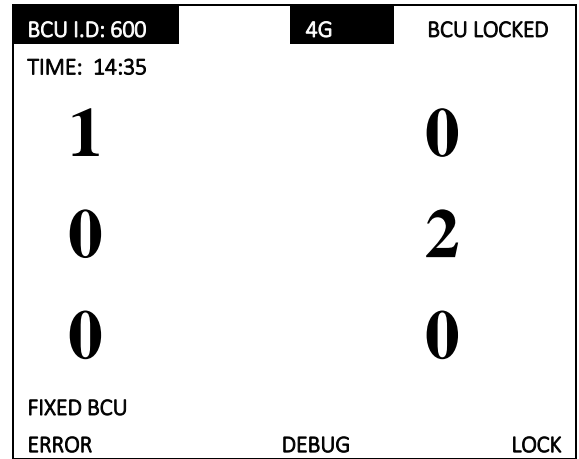   - Press **EXIT** to exit screen.
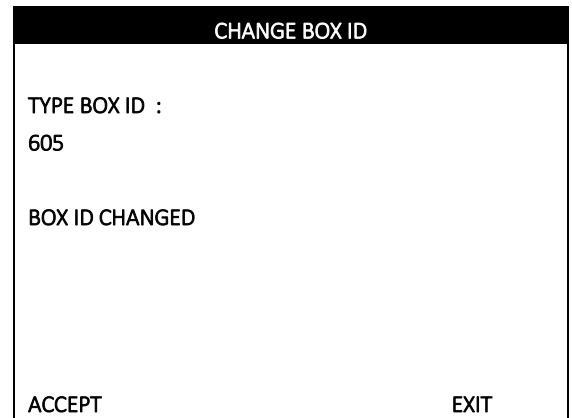
```
CHANGE BOX ID

TYPE BOX ID  :
605


BOX ID CHANGED




ACCEPT                                    EXIT
```

⚠ NOTE	**Box ID range should always be within 257 to 65535, in the event that the ID is out of specified range, contact the supplier.**
	Never assign the same ID to two devices - Always use an unassigned ID to a device.

blastweb

10.4. Surface Lock Override

This function enables the user to unlock the BCU if it had been locked (restricted from arming / blasting) from the Surface Blast Controller, only in the event that communication between BCU and Surface Controller cannot be re-established and the BCU absolutely has to be blasted locally.

1. BCU LOCKED will be displayed
   - Press **DEBUG** soft key to open debug menu

BCU I.D: 600	4G	BCU LOCKED
TIME: 14:35		

1	0
0	2
0	0

FIXED BCU

ERROR	DEBUG	LOCK

2. Debug Screen
   - Using the numerical key pad, enter four digit password
   - Press **ENTER** to continue
   - Press **EXIT** soft key to exit
   - Press **7** to select **SYSTEM SETTINGS**

DEBUG MENU

1	LOGS
2	IO CALIBRATION
3	SET DATE AND TIME
4	SYSTEM DIAGNOSTICS
5	CHANGE DEBUG PASSWORD
6	CHANGE BCU MODE
7	SYSTEM SETTINGS

EXIT

blastweb
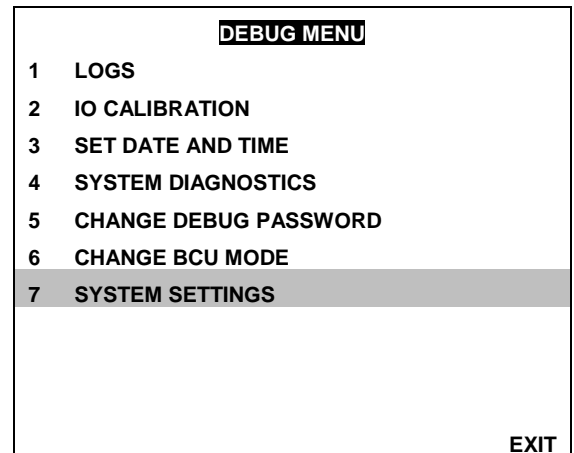
3. System Settings Screen

! NOTE	**The following screen depicts an example of the System Settings – Version numbers may be different on your display.**

- Press **ENTER** and then press keys 0 – 9 sequentially

```
              SYSTEM SETTINGS
LOCAL I.P. ADDRESS :
192.168.001.021

LOCAL MAC ADDRESS:
123.200.021.123.200.021

BOX I.D.:
600

MAIN VER:   34481b          HW VER:  3f0
PL SW VER:  33753
IO SW VER:  34504
UI SW VER:  31147

     IP          MAC         BOX
   CHANGE      CHANGE      CHANGE         EXIT
```

4. Surface Lock Override
    - Enter CHALLENGE response to unlock BCU locally.

```
              SURFACE LOCK OVERRIDE

    IN ORDER TO UNLOCK BCU THAT
    LOST SERVER COMMUNICATION,
    ENTER RESPONSE CODE  12345

    YOUR RESPONSE :

    PRESS ESC TO EXIT
```

5. Surface Lock Override
    - Lock disabled

```
              SURFACE LOCK OVERRIDE

    BLAST CONTROLLER LOCK NOW
    LOCALLY DISABLED!
    PROCEED WITH CAUTION
```

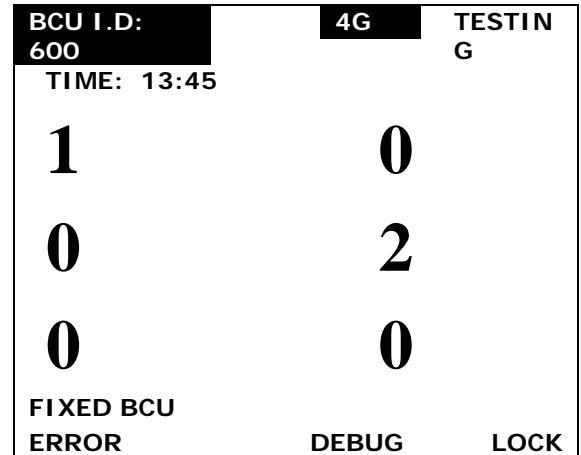| ! CAUTION	**PROCEED WITH CAUTION**

blastweb

10.5. Bootload Mode Setup

The soft-boot option on the BCU is used to minimize the chance of settings, and more specifically logs, corruption when performing a firmware upgrade.

> ⚠️ **NOTE**
>
> **The BOOTLOADING function is accessed from all DEBUG password-requesting screens using the "BOOTLD" soft menu option.**
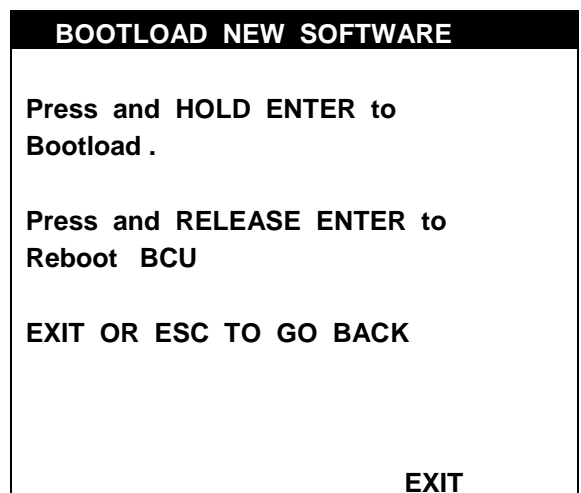
1. From the main screen
   - Press **DEBUG** soft key to select DEBUG

```
BCU I.D:          4G      TESTIN
600                       G
  TIME: 13:45

     1              0

     0              2

     0              0

FIXED BCU
ERROR          DEBUG      LOCK
```

2. The password-requesting screen will be displayed
   - Do not enter a password
   - Press **BOOTLD** to start the bootloading process

```



         PASSWORD :




ERROR    BOOTLD              EXIT
```
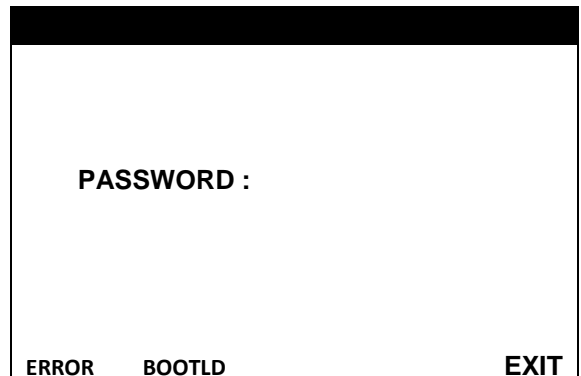
3. Message will be displayed indicating available functions.
   - Press and keep the ENTER button pressed-in while BCU resets to enter Bootloader mode from where new software can be loaded.
   - Press and release the ENTER button to enable the BCU to simply reboot
   - Press Exit to return to the main screen

```
  BOOTLOAD NEW SOFTWARE

Press and HOLD ENTER to
Bootload .

Press and RELEASE ENTER to
Reboot  BCU

EXIT OR ESC TO GO BACK




                         EXIT
```

When Bootloader mode was selected, the screen will prompt the user to keep the ENTER button pressed in

```
//////////////////////////////////////
//                                  //
//          BCU REBOOTING...        //
//                                  //
//        Keep ENTER pressed        //
//        in order to BOOTLOAD.     //
//                                  //
//////////////////////////////////////
```

System parameters corrupt
- In the event that recovery of IP, MAC and ID fails, the BCU will most likely not be able to communicate with the surface controller, in which case the BCU will require its settings to be physically reset by user at the BCU, or require a bootload via usb.

Settings such as timing templates could be lost, and is a given when upgrading from a version older than 31934.

```
SYSTEM PARAMETERS CORRUPT!
VERIFY ALL SYSTEMS SETTINGS
AND TEMPLATES BEFORE BLASTING !

Attempted to recover these :
IP : 192 . 168 . 001 . 002
MAC : 123 . 200.021.123.200.021
BCU ID : 600
BCU Mode : BCU4G

Press ENTER to RESET and CONT.

R : 4
```