

Document ref:	05125-901-MMC-01		
Project number:	05125-901	Product reference:	8303
Issue:	01	Date of creation:	10 Apr 2025

Extracting Data from a BPR Memory Card

	Name	Date
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Amendment history

The amendment history records all amendments and additions made to this document.

Issue	Date	Comments
1	As per the date of the last approval signature	Initial Issue

Definitions

Abbreviation	Definition
CSV	Comma Separated Values file extension
DAS	Data Acquisition and logging Sub-system
MMC	Multi-Media Card (Memory Card)
Sonardyne	Sonardyne International Ltd and its affiliates

Related documents

Reference	Title
IOM-8303	Installation, Operation and Maintenance Manual for the 6G Tsunami Detection System
UM-8300	Compatt 6+ B1 User Manual
MmcDataRecover.exe	BPR memory card data retrieval and CSV management software
TsunamiMemInit.exe	BPR memory card initialisation software

1 Introduction & Scope

The following procedure is for the removal of the MMC, data retrieval and reinstallation from an 8303 Tsunami BPR.

2 Memory Card Removal

To physically access the MMC, the transducer endcap must be removed, the sensor endcap released and partially removed.

The transducer endcap must be removed by following the procedure detailed in 8.9.1 of UM-8300.

The MMC is located on the DAS board fitted to the sensor endcap. Partially remove the sensor endcap following the procedure detailed in 8.11.1 of UM-8300. The DAS board and it's chassis do not need to be fully removed. This procedure can be halted during step 13 when the MMC is exposed (as per Figure 1).

Using a 2.5 mm Allen (hex) key, carefully remove the screw (highlighted by the red circle in Figure 1) holding the MMC in place, along with the M3 crinkle washer and the brass card-retainer washer. Note that the brass washer does not clamp down on top of the card.

The MMC can then be removed from it's caddy.



Figure 1 - DAS board with MMC exposed as sensor endcap is partially removed

3 MMC Data Retrieval

3.1 Procedure

1. Fit a suitable USB card reader to a PC and insert the BPR memory card.

CAUTION

If Windows displays a "Disk is not formatted" message (Figure 2), click "No". Data stored on the memory card uses a proprietary binary data format, which can only be read by the Sonardyne card reader software. If Windows is allowed to reformat the card, all data will be lost.



Figure 2 - Disk format warning

2. Run the memory card reader software **MmcDataRecover.exe**.

٦	sunami MMC card data recovery 1.00.004	
		E Logical drive Read sector zero
		Store as image file
		Decode image file
		Produce 5 day files
		Produce 10 day files
	8	Exit

Figure 3 - MmcDataRecover.exe with logical drive selector highlighted

3. Select the logical drive (Figure 3), and then click **< Read sector zero >** (Figure 4) which shows the calibration data.

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Extracting Data from a BPR Memory Card

Tsunami MMC card data recovery 1.00.004	
Record time 14:22:26 22/09/2006 241727-003 8000-074 Type 11 Id 0900003e950ca37 System Config 0000105 Hardware 03ff DQ2 serial number 100902 DQ2 Fwill scale 10000 UU = 5.843750 Y1 = -3849.954 Y2 = -10487.38 Y3 = 0.0 C1 = -43657.25 C2 = 139 5117 C3 = 152154.7 D1 = 0.036691 D2 = 0.0 T1 = 29.89289 T5 = 0.0 T1 = 29.89289 T5 = 0.0 Xtal cal values 0.99991941 0.9999983 0.9999310 1.0000179 1.0000143 0.0900055 1.0000048 1.09999815 0.9999988 0.9999934 0.9999983 0.99999875 0.99999815 0.99999785 0.99999738 0.99999870 0.99999870 0.99999813 0.99999303 0.99999738 0.99999470 0.99999303 0.99999350 0.99999303 0.99999303 0.99999370 0.99999350 0.99999350 0.99999303 0.99999231 Alarm level = 300 Pa Spike reject = 100 Pa Initialised 22/09/2006 DKN	E Logical drive Read sector zero Store as image file Decode image file Produce 5 day files Produce 10 day files

Figure 4 - MmcDataRecover.exe with Read sector zero highlighted and calibration information displayed

4. Click **< Store as image file >**.(Figure 5) This will take several minutes to complete. The image file will be stored in c:\sonardyne\tsunami, and will have a *.mmc filename, comprising the serial number of the endcap, the time and date the card was initialised, e.g:

241727-001 4-44 9_09_2006 Data.mmc

Tsunami MMC card data recovery 1.00.004		
File C:\Sonardyne\Tsunami\241727-003 14-22 22_09_2006.mmc 256 Mb transferred Started 12:02:21 Ended 12:14:36 Elapsed 00:12:15		E Logical drive Read sector zero Store as image file Decode image file Produce 5 day files Produce 10 day files
	~	Exit

Figure 5 - MmcDataRecover.exe with Store as image file highlighted

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5. Click **< Decode image file >** (Figure 6).

Tsunami MMC card data recovery 1.00.004	
Record time 14:22:26 22/09/2006 241727-003 8000-074 Type 11 Id 09000003e950ca37 System Config 0000105 Hardware 03ff DQZ serial number 100902 DQZ Full scale 10000 U0 = 5.843750 V1 = -3849.954 Y2 = -10487.38 Y3 = 0.0 C1 = -43657.25 C2 = 139.5117 C3 = 152154.7 D1 = 0.036691 D2 = 0.0 T1 = 29.89289 T2 = 1.425821 T3 = 66.81184 T4 = 232.3199 T5 = 0.0 Xtal cal values 0.99991941 0.99999493 0.99993110 1.00000179 1.00000143 1.00000055 1.0000048 1.00999915 0.9999988 0.99999334 0.99999893 0.99999848 0.9999915 0.99999785 0.99999738 0.99999893 0.99999848 0.9999915 0.99999785 0.99999738 0.99999470 0.99999838 0.99999350 0.99999303 0.9999931 Alarm level = 300 Pa Spike reject = 1000 Pa Initialised 22/09/2006 DKN	E Logical drive Read sector zero Store as image file Decode image file Produce 5 day files Produce 10 day files
	E XI(

Figure 6 - MmcDataRecover.exe with Decode image file highlighted

6. Select the image file to be decoded, then the software will extract all data records, and create a csv file in the same directory, with the same file name but a *.csv file extension, e.g:

241727-001 4-44 9_09_2006 Data_FULL.csv

7. Once complete, the **< Read Sector Zero >** display (Figure 4) is shown again.

3.2 Additional Data Manipulation

It is good practice to make the *.mmc file and the *_FULL.csv file Read-Only so that original data is not lost.

The csv file may be very large. To assist data analysis, the software offers the ability to extract data from the *_FULL.csv file and save it into multiple, smaller files containing 5- or 10-days' worth of data (Figure 7).

The **< Produce 5 day files >** button will create a series of separate csv files, containing 5 days data, ending at midnight on the fifth day. One csv file will contain 28,000 lines of data that Excel can plot on a single Chart.

The **< Produce 10 day files >** button will create a series of separate csv files, containing 10 days worth of data ending at midnight on the tenth day. One csv file will contain approximately 56,000 lines of data, which Excel can hold in a single Sheet.

Tsunami MMC card data recovery 1.00.004	
Input data file C.\Sonardyne\Tsunani\241727-003 14-22 22_09_2006 Data_FULL.csv Output data files C.\Sonardyne\Tsunani\241727-003 14-22 22_09_2006 Data_05_0002.csv C.\Sonardyne\Tsunani\241727-003 14-22 22_09_2006 Data_05_0003.csv C.\Sonardyne\Tsunani\241727-003 14-22 22_09_2006 Data_05_0004.csv C.\Sonardyne\Tsunani\241727-003 14-22 22_09_2006 Data_05_0004.csv C.\Sonardyne\Tsunani\241727-003 14-22 22_09_2006 Data_05_0005.csv C.\Sonardyne\Tsunani\241727-003 14-22 22_09_2006 Data_05_0005.csv C.\Sonardyne\Tsunani\241727-003 14-22 22_09_2006 Data_05_0007.csv	E Logical drive Read sector zero Store as image file Decode image file Produce 5 day files Produce 10 day files

Figure 7 MmcDataRecover.exe with 5/10 days file options highlighted

4 Reassembly of BPR Unit

NOTE

Insert the card with the contacts facing the board. The card has to be gently pushed into the socket as far as it will go to allow the brass washer to mount flush onto the board.

The MMC can now be re-installed in the BPR. Remember to fit the brass washer, the crinkle washer and the M3 socket cap screw, to hold the MMC in place.

Follow the procedure detailed in 8.11.2 of UM-8300, starting from step 5, to refit the sensor and transducer endcaps.

5 Verification of Reinstalled Memory Card

5.1 DAS Calibration Mode

Connect the Dual Serial Cable as per 9.3.1 of UM-8300.

Connect the CPU connector of the Dual Serial Cable via a suitable RS232 serial USB adapter to the PC and run 6G Terminal. Navigate to the **6G Setup** tab and, after the fields have been updated by the BPR, select **DAS Calibration < ON >** (Figure 8).

6G Terminal Version 0.0.0.0				-	- 🗆 X		
File Tools Lodestar Options N	NSH Utilities Test H	lelp					
COM4	Connect Disconnect	Authenticate		Set Instrument Time	10:47:31		
Manual Commands Scripting Noise 6G Sc	etup Release HPT Command	ds Monitor Calibration	on Data acquist	ion IT / IR / BR			
Identity			Power /	Gain			
Address 2503	Set	Refresh	Scenario	USBL Positioning	~		
Serial Number 0-000	14	.0V -15.5mA	Range = 3000m				
UID 003FE4	t Ty	pe = LI_ION					
Depth Rating Unknow	wn 22	.0 °C					
Transducer LMF DI	R 100%						
Firmware Version 3.05.01	.14 Sensors		1 miles		and the second		
DAS Version 2.01D				and the second	and the second second		
Functionality Level 005A		Ŧ					
Navigation	Test						
Enable Responder	Sensors	Ranç	ge Test	Release	•		
CIS Enable TAT	Check	Ra	nge Test	ARM	CLOSE		
CIS1604 ~ 400 ~							
Pulse Position Replies		Add	ress to	2010 Gyro C	ompatt		
Disabled ~		■ rang	je to	Set On	Off		
HPR Support Enable B45	Check Hardware Check PASS	DAS	Calibration Dn	Off R	rate Test eport		



Close 6G Terminal, disconnect the CPU serial connector and connect the DAS serial connector.

5.2 MMC/SD Card initialisation

To verify that the MMC is installed correctly and can be read run the **TsunamiMemInit.exe** software. Select **< Get current status >** and confirm that "*MMC/SD card does contain data"* is displayed (Figure 9).

300-079 Type 31 V2.01 D nd-cap serial 352719-002 st Ser 09:000009c38524 nd Ser 09:000009e36482				Get current status	
ast factory calibration 3: o XTAL temperature correct:	L/08/2023 RJB 00 ion!!!!			Full initialize sequen	~ 0
rn Sensor					ue –
1 Int PRT	11/06/2024 PNT	0	mA		
2 Int DQZ	10/06/2024 PNT	0	mA		
6 Kelease 2 Int CPI local/Inclin	11/06/2024 PNT	0		Synchoronise time to	PC
tart time of data $09:09:00$	18/06/2024 25/06/2024				
sunami detect level sunami spike reject level	30.0 mm 100.0 mm			Set battery limits	
MS destination address	5606				
MS target port MS V value	U 1				
MS TS value	2			Exit	
AS Battery limit percent	90 iananad				
AS Battery Himit Volts .	rgnoreu				
TC set to 10:56:27 25/06/2	2024				

Figure 9 - TsunamiMemInit.exe with Get current status and data response highlighted

This confirms the MMC card is correctly installed. Select **< Full Initialise sequence >** and delete data if a copy has been made and is not required to remain on the card. The **< Get current status >** window will be displayed with ""*MMC/SD card does not contain data*".

Using 6G Terminal, as per 5.1, select **DAS Calibration < Off >**.

END