applied acoustics
underwater technology

Quick Start Guide
1100 Series Midi Beacons

Model Types

Model	Beam Pattern	High SPL	Dia.	Length	Survival Depth
1133H	±30°	203dB	74mm	540mm	4000m
1139	±90°	191dB	74mm	540mm	4000m

Packing List

- 1130 Series Beacon
- BCN-1010-8002 – Acoustic Support Flash Drive

Beam Patterns

Directional (e.g. 1133H)

Omni-directional (e.g. 1139)

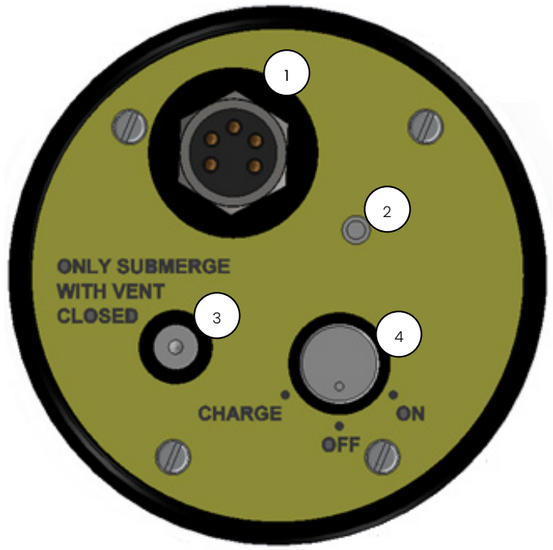
Handling

Although these beacons are resistant to mechanical vibration and shock, every effort should be made to avoid carless handling.

Note: Damage to the beacon's anodising must be avoided at all cost, as this will reduce the operational life of the beacon.

Connector End-Cap (Face View)

1. Bulkhead connector
2. Depth sensor (if fitted D suffix)
3. Pressure Relief Valve
4. Selector Switch



MCBH5M Bulkhead Connector (Face View)

PIN 1. External Trigger Input / RS232 RXD
+5 to +25VDC, 1ms minimum Key
PIN 2. 0VDC Common
PIN 3. Fast Charge / RS232 TXD
PIN 4. External 24VDC Input / Fast Charge Status
22 to 35VDC 80mA
Recommended fuse = 200mA (max)
PIN 5. Not Connected

Note: Upon deployment, fit Dummy Connector. Any underwater connections should be greased with O-Lube or Silicone Grease to prevent mating damage occurring and aid water block.

Operation

- For normal operation, turn on beacon by rotating Selector Switch to 'ON' position.
- To fast charge beacon with 1082 Smart Switch, rotate Selector Switch to 'CHARGE' position.
- For storage and transportation ensure the selector switch is rotated to 'OFF'.

Channel Configuration (Smart Switch)

- Connect 1082 Smart Switch to 1100 series beacon using pigtail supplied.
- Turn on beacon by rotating Selector Switch to ON position.
- Wake up 1082 Smart Switch if asleep by pressing any button.
- Press ↻ to cycle through menus to Fast ID Beacon, then press ↵ to identify beacon. Display will indicate beacon model and configuration.
- Select 'Beacon Config' to change beacon parameters. Refer 1082 Smart Switch manual for detailed operation.

Functionality

Using an AAE PAM tester:

- Select matching channel in the transponder testing function. PAM will transmit, receive and display turnaround times. It should be possible to achieve short ranges in air (1 metre typical).
- To confirm responder mode operation, connect to beacon via the pigtail / charge lead and select responder.

Alternatively responder functionality can be checked using the 1082 Smart Switch:

- Connect 1082 Smart Switch to 1100 series beacon using pigtail supplied.
- Turn on beacon by rotating Selector Switch to ON position.
- Pressing ↰ will exit back to top menu(s).
- Press ↻ to cycle through menus to Responder Test. Press ↵ to select.
- Press ↻ to select test ON and OFF.
- Beacon will transmit if operational.

Power and Gain Configuration

- Connect the beacon to a PC serial port using the pigtail.
- Run beacon editor application
- Once the beacon has connected to the software select the desired power and gain levels using the check boxes.
- Low power is specified at 6dB below high SPL. This will increase battery life but reduce max range.
- Low gain should be used to avoid saturation of receiver at close ranges.

Fast Charging

- Connect 1082 Smart Switch to 1100 series beacon using pigtail supplied.
- Rotate beacon Selector Switch to CHARGE position.
- Connect external 30VDC power supply to 1082 Smart Switch.
- Wake up 1082 Smart Switch if asleep by pressing any button.
- Press ↻ to cycle thru menus to Fast Charge, then press ↵ to select.
- Display will prompt for external power if not inserted.
- Else press ↵ to begin charge.

WARNING: - The beacon must be vented before and after a charge cycle. Manually vent PRV by pulling out the PRV until you can audibly hear any pressure being released, then press the PRV back into position.

Transportation by Air

All equipment should be switched off prior to air transportation. Switching off is achieved by turning the selector switch to the 'OFF' position.

NiMH Battery Packs

This battery pack is **not** classified as dangerous goods for transportation by air.

Any paperwork accompanying beacons that use these battery types should state this clearly.

Compatibility

Easytrak Nexus 2 – (Sigma II)

Sigma2 Channel configuration consists of a Wake-Up Tone (WUT), Interrogate Code (IC), Reply Code (RC) and Turn-Around-Time Extension (TATX) in sequence before selecting the confirmed configuration:

WUT + IC + RC + TATX

Wake up (WUT) ID 0-7, total of 8

Interrogate Code (IC) 00 to14, total of 15 codes

Reply Code (RC) 00 to 14, total of 15 codes

Turn-Around-Time Extension (TATX): Default extension = 0ms.

The Sigma 2 framework provides configuration options for common interrogate of an array of up to 10 1110 beacons for high speed positional updates. The TATX extension is applicable to this functionality.

(Sigma II – Quickset)

ID Channel	Nexus 2 Channel	Transponder TAT (ms)	Responder TAT (ms)
AA	AAE SIGMA 2 QUICKSET 1	75	75
AB	AAE SIGMA 2 QUICKSET 2	75	75
AC	AAE SIGMA 2 QUICKSET 3	75	75
AD	AAE SIGMA 2 QUICKSET 4	75	75
AE	AAE SIGMA 2 QUICKSET 5	75	75
AF	AAE SIGMA 2 QUICKSET 6	75	75
BC	AAE SIGMA 2 QUICKSET 7	75	75
BD	AAE SIGMA 2 QUICKSET 8	75	75

AAE Easytrak

Channel	RXF1 (Hz)	RXF2 (Hz)	TXF1 (Hz)	TXF2 (Hz)*	TAT (ms)	Pulse Width (ms)
A0	17500	-	30000	29000	30	2
A1	18500	-	28000	27000	30	2
A2	19500	-	26000	25000	30	2
A3	20500	-	29000	28000	30	2
A4	21500	-	27000	26000	30	2
A5	22500	-	30000	29000	30	2
A6	18000	20000	27000	26000	60	2
A7	18000	21000	28000	27000	60	2
A8	18000	22000	30000	29000	60	2
A9	18000	23000	29000	28000	60	2
B0	20000	18000	30000	29000	60	2
B1	20000	21000	29000	28000	60	2
B2	20000	22000	28000	27000	60	2
B3	21000	18000	27000	26000	60	2
B4	21000	20000	26000	25000	60	2
B5	21000	22000	28000	27000	60	2
B6	21000	23000	30000	29000	60	2
B7	22000	18000	26000	25000	60	2

Easytrak Nexus - (Spread Spectrum SS)

ID	Channel	Transponder TAT (ms)	Responder TAT (ms)	Description
E0	SS CH 0	100	100	AAE Spread Spectrum
E1	SS CH 1	100	100	AAE Spread Spectrum
E2	SS CH 2	100	100	AAE Spread Spectrum
E3	SS CH 3	100	100	AAE Spread Spectrum
E4	SS CH 4	100	100	AAE Spread Spectrum
E5	SS CH 5	100	100	AAE Spread Spectrum
E6	SS CH 6	100	100	AAE Spread Spectrum
E7	SS CH 7	100	100	AAE Spread Spectrum
E8	SS CH 8	100	100	AAE Spread Spectrum
E9	SS CH 9	100	100	AAE Spread Spectrum
EA	SS CH 10	100	100	AAE Spread Spectrum
EB	SS CH 11	100	100	AAE Spread Spectrum
EC	SS CH 12	100	100	AAE Spread Spectrum
ED	SS CH 13	100	100	AAE Spread Spectrum
EE	SS CH 14	100	100	AAE Spread Spectrum
EF	SS CH 15	100	100	AAE Spread Spectrum
F0	SS CH 16	100	100	AAE Spread Spectrum
F1	SS CH 17	100	100	AAE Spread Spectrum
F2	SS CH 18	100	100	AAE Spread Spectrum
F3	SS CH 19	100	100	AAE Spread Spectrum
F4	SS CH 20	100	100	AAE Spread Spectrum
F5	SS CH 21	100	100	AAE Spread Spectrum
F6	SS CH 22	100	100	AAE Spread Spectrum
F7	SS CH 23	100	100	AAE Spread Spectrum
F8	SS CH 24	100	100	AAE Spread Spectrum
F9	SS CH 25	100	100	AAE Spread Spectrum
FA	SS CH 26	100	100	AAE Spread Spectrum
FB	SS CH 27	100	100	AAE Spread Spectrum
FC	SS CH 28	100	100	AAE Spread Spectrum
FD	SS CH 29	100	100	AAE Spread Spectrum
FE	SS CH 30	100	100	AAE Spread Spectrum
FF	SS CH 31	100	100	AAE Spread Spectrum

iXBlue

Firmware permitting, these beacons are iXBlue compatible as detailed below: -

The Interrogate Frequency is selectable from 19.5kHz to 21.5kHz in 1kHz steps.

The Reply Code is selectable from 00 to 09, 22 & 23 for a total of 12 codes.

Turn-Around-Time is selectable from 20 milliseconds to 200 milliseconds in 1 millisecond steps.

Kongsberg HiPAP

Channel	RXF1 (Hz)	RXF2 (Hz)	TXF1 (Hz)	TXF2 (Hz)*	Trans TAT (ms)	Resp TAT (ms)	Pulse Width (ms)
12	21000	21500	29250	29750	60	30	10
13	21000	22000	29750	30250	60	30	10
14	21000	22500	30250	28750	60	30	10
15	21000	23000	30750	27250	60	30	10
16	21000	23500	27250	27750	60	30	10
17	21000	24000	27750	28250	60	30	10
18	21000	24500	28250	30750	60	30	10
21	21500	21000	28500	29000	60	30	10
23	21500	22000	29500	30000	60	30	10
24	21500	22500	30000	28500	60	30	10
25	21500	23000	30500	27000	60	30	10
26	21500	23500	27000	27500	60	30	10
27	21500	24000	27500	28000	60	30	10
28	21500	24500	28000	30500	60	30	10
31	22000	21000	28750	29250	60	30	10
32	22000	21500	29250	29750	60	30	10
34	22000	22500	30250	28750	60	30	10
35	22000	23000	30750	27250	60	30	10
36	22000	23500	27250	27750	60	30	10
37	22000	24000	27750	28250	60	30	10
38	22000	24500	28250	30750	60	30	10
41	22500	21000	28500	29000	60	30	10
42	22500	21500	29000	29500	60	30	10
43	22500	22000	29500	30000	60	30	10
45	22500	23000	30500	27000	60	30	10
46	22500	23500	27000	27500	60	30	10
47	22500	24000	27500	28000	60	30	10
48	22500	24500	28000	30500	60	30	10
51	23000	21000	28750	29250	60	30	10
52	23000	21500	29250	29750	60	30	10
53	23000	22000	29750	30250	60	30	10
54	23000	22500	30250	28750	60	30	10
56	23000	23500	27250	27750	60	30	10
57	23000	24000	27750	28250	60	30	10
58	23000	24500	28250	30750	60	30	10
61	23500	21000	28500	29000	60	30	10
62	23500	21500	29000	29500	60	30	10
63	23500	22000	29500	30000	60	30	10
64	23500	22500	30000	28500	60	30	10
65	23500	23000	30500	27000	60	30	10
67	23500	24000	27500	28000	60	30	10
68	23500	24500	28000	30500	60	30	10
71	24000	21000	28750	29250	60	30	10
72	24000	21500	29250	29750	60	30	10
73	24000	22000	29750	30250	60	30	10
74	24000	22500	30250	28750	60	30	10
75	24000	23000	30750	27250	60	30	10
76	24000	23500	27250	27750	60	30	10
78	24000	24500	28250	30750	60	30	10
81	24500	21000	28500	29000	60	30	10
82	24500	21500	29000	29500	60	30	10
83	24500	22000	29500	30000	60	30	10
84	24500	22500	30000	28500	60	30	10
85	24500	23000	30500	27000	60	30	10
86	24500	23500	27000	27500	60	30	10
87	24500	24000	27500	28000	60	30	10

*Depth telemetry transponders only.

1130 Series beacons comply with 'B' Channels as shown on the monitor screen e.g. "B24" for our channel 24. Please note that the HiPAP system is not able to operate with the 'old' HPR channels 11/22/33/44/55 and 1 to 9.

Troubleshooting

Check for external damage to the bulkhead charging connector and transducer.

Check that battery is charged.

Refer to the main operating manual regarding charging

Compare performance with an identical model if possible. Use directional units for deep work and Omni-directional for shallow shorter range work.

Are you out of range? Maybe a higher powered unit is required. Are you within the beam pattern of the transducer? The beacon may not be 'illuminating' the vessel on account of: cable centenary or severe ray bending due to thermoclines.

applied acoustics
underwater technology

Quick Start Guide
1100 Series Mini Beacons

Thank you for choosing applied acoustics ltd as one of your equipment suppliers. We hope you experience many years of reliable operational use from our products.

modulus technology
engineering services

modulus technology ltd carries out all technical support, servicing and repairs. If you have any technical issues with our products please contact the modulus technology team:

Tel: +44 (0)1493 416452
Email: techsupport@modulustechnology.com
Web: modulustechnology.com

BCN-11130-8001/1

UK CA CE