

# MA2H Alarm Horn Sounder IP66/67 Type 4/4X/13

The MA2H is a very high output, 129dB(A) alarm horn sounder. Featuring a robust, fire retardant, IP66 and IP67 Type 4/4X/13 enclosure. Utilising the new E2S '2H' super high output flare horn – engineered to maximise audible signaling performance.

The 'M' series of products have been designed to withstand the harshest of environments. Constructed from lightweight, impact and fire resistant ABS, the range features stainless steel, ratchet adjustable mounting brackets. The MA2H features a enhanced flare horn design achieving a very high level of sound output. Employing the latest in reliable D Class amplifier technology the MA2H maintains low in-rush and, current consumption and wide input voltage range. Two user selectable power settings provide the optimum combination of sound level output and current consumption

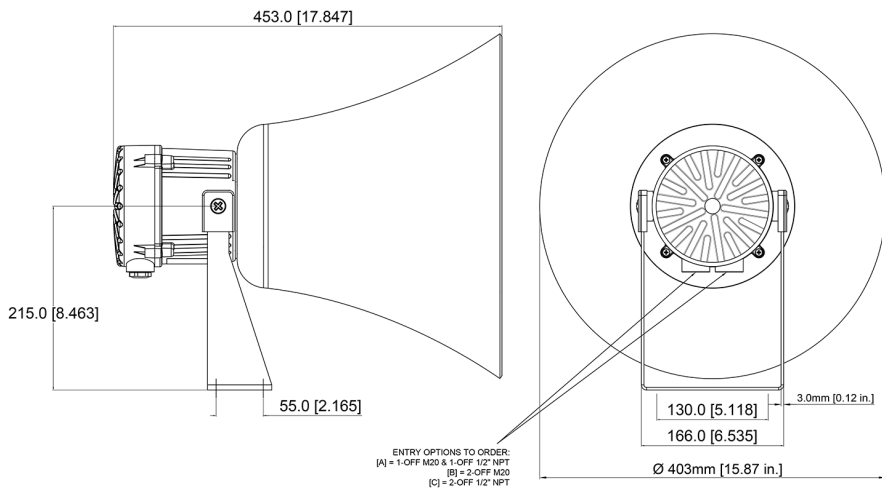
## Features

- Ingress protection IP66/67 Type 4/4X/13
- Automatic synchronisation on multi-sounder systems
- Dual user-selectable sound output power modes
- Continuously rated
- Large termination area
- Dual M20 or 1/2"NPT cable entries – adaptors available
- 316 (A4) Stainless steel mounting bracket
- Ratchet adjustable 'U' bracket for 360° positioning
- Duplicate pluggable cable terminations
- Conformal coated (tropicalised) electronics
- 64 alarm tone frequencies and 4 remotely activated alarm stages
- Positive or negative stage activation switching
- Alternative activation configurations available
- Available with custom tone configurations and frequencies

## Approvals

- Russian Maritime Register of Shipping  
Cert: No. 19.00193.278
- SIL1 & SIL2 compliant to IEC61508 (2010)





## Specification

Maximum output: Default power level: 129dB(A) @ 1 m +/- 3dB  
 [120dB(A) @ 10ft/3m +/- 3dB]  
 Lower power level: 126dB(A) @ 1 m +/- 3dB  
 [117dB(A) @ 10ft/3m +/- 3dB]

Nominal output: Default power level: 127dB(A) @ 1m +/- 3dB  
 [116dB(A) @ 10ft/3m] +/- 3dB  
 Lower power level: 123dB(A) @ 1m +/- 3dB  
 [114dB(A) @ 10ft/3m] +/- 3dB

No. of tones: 64 (UK00A / PFEER compliant)

No. of stages: 4

Volume control: Full range control

Effective range: High power level: 422m/1384ft @ 1KHz  
 Default power level: 624m/2047ft @ 1KHz

Voltages DC: 10-60V dc  
 High voltage DC option available

Voltages AC: 100-240V ac 50/60Hz

In rush: 815mA within 4.0ms @ 24Vdc

Stage switching: Negative, positive, voltage free

Safety Integrity Level: SIL1 and SIL2 Route 2H IEC61508 (2010)

Line monitoring: Diode polarized for use in supervised circuits

Ingress protection: IP66 & IP67 Type 4/4X/13

Enclosure material: High impact UL94 V0 & 5VA FR ABS

Enclosure colour: Grey or Red

Cable entries: 2 x M20; 1 x M20 & 1 x 1/2"NPT; 2 x 1/2"NPT  
 supplied with blanking plug

Terminals: 0.5 - 2.5mm<sup>2</sup> (20-14 AWG)

Operating temp: -40 to +66°C [-40° to +151°F]

Storage temp: -40 to +70°C [-40° to +158°F]

Relative humidity: 99%

MTBF DC: 93.92 years / 822,706 hours - MIL 217

MTBF AC: 46.66 years / 408,508 hours - MIL 217

Weight DC: 3.00kg/6.6lbs

Weight AC: 3.50kg/7.7lbs

## Part Codes

Variable: Identifier: Description:

Product type:	MA2	Alarm horn sounder
Flare type:	H	High Output Flare re-entrant horn
Voltage:	DC024	10-60V dc
	AC230	100-240V ac 50/60Hz
Cable entries: [e]	A	M20x1.5 & 1/2" NPT
	B	M20x1.5 & M20x1.5 (Default)
	C	1/2" NPT & 1/2" NPT
Stopping plug material: [m]	N	Nylon
Bracket: [s]	1	316 (A4) Stainless Steel
	3	316 (A4) Stainless Steel with Equipment tag
Product version: [v]	A	CE, EAC, RMRS, SIL1 & SIL2
	T	Telephone/Relay Initiate - CE, EAC, RMRS
Product option: [o]	1	Standard product
	Z	Custom alarm tone software - contact E2S
	X	Custom configuration - contact E2S
	Y	Stage control Config. 4
	K	Stage control Config. 5 (DC) and Config. 2 (AC)
	V	Stage control Config. 6
Enclosure colour: [x]	G	Grey
	R	Red
	S	Special colour - contact E2S

Accessories:  
 SP65-0001-A4 Pole Mount Bracket Kit St/St 316 (A4)

## Alarm stage control:

Please review the installation manual and wiring schematics for remote stage control and EOL resistor monitoring configuration options:

Config. 1 [DC]:	Factory default. Common negative, positive switching. Up to 4 Alarm Stages. EOL monitoring Alarm Stage 1 only
Config. 2 [DC]:	User setting. Common positive, negative switching. Up to 4 Alarm Stages. EOL monitoring Alarm Stage 1 only
Config. 3 [DC]:	User setting. Common negative, positive switching activation of Alarm Stages 1 & 2 with EOL on both stages. Reverse polarity monitoring
Config. 4 [DC]:	Product option 'Y'. Independent activation of Alarm Stages 1 & 2 with EOL on both stages. Forward polarity monitoring
Config. 5 [DC]:	Product option 'K'. Horn continuously powered. Voltage free activation of up to 3 alarm stages
Config. 6 [DC]:	Product option 'V'. Independent activation of up to 4 Alarm Stages with EOL on all stages. Forward polarity monitoring
Config. 1 [AC]:	Factory default. Up to 4 Alarm Stages. Stage 1 activated at power on. Stages 2, 3 and 4 via volt free contacts

## Tone table

S 1	Description	S 2	S 3	S 4	S 1	Description	S 2	S 3	S 4
T 1	1000 Continuous - PFEER Toxic Gas	Any	T 2	T 44	T 33	800 (0.25s on, 1.00s off) Intermittent	Any	T 24	T 8
T 2	1200/500 @ 1Hz Sweeping - DIN / PFEER P.T.A.P.	Any	T 3	T 44	T 34	800 @ 2Hz (0.25s on, 0.25s off) - IMO code 3....	Any	T 24	T 8
T 3	1000 @ 0.5Hz (1s on, 1s off) Intermittent - P...	Any	T 2	T 44	T 35	1000 @ 1Hz (0.50s on, 0.50s off) Intermittent	Any	T 24	T 8
T 4	1.4KH-1.6KHz 1s, 1.6KHz-1.4KHz 0.5s - NF C 48...	Any	T 24	T 1	T 36	2400 @ 1Hz (0.50s on, 0.50s off) Intermittent	Any	T 24	T 8
T 5	544(100mS)/440 (400mS) - NF S 32-001	Any	T 19	T 1	T 37	2900 @ 5Hz (0.10s on, 0.10s off) Intermittent	Any	T 24	T 8
T 6	1500/500 - (0.5s on, 0.5s off) x3 + 1s gap - ...	Any	T 44	T 1	T 38	363/518 @ 1Hz (0.50s / 0.50s) Alternating	Any	T 8	T 19
T 7	500-1500Hz Sweeping 2 sec on 1 sec off - AS4428	Any	T 44	T 1	T 39	450/500 @ 2Hz (0.25s / 0.25s) Alternating	Any	T 8	T 19
T 8	500/1200Hz @ 0.26Hz(3.3s on, 0.5s off) - NEN ...	Any	T 24	T 35	T 40	554/440 @ 1Hz (0.50s / 0.50s) Alternating	Any	T 24	T 19
T 9	1000 (1s on, 1s off)x7 + (7s on, 1s off) - IM...	Any	T 34	T 1	T 41	554/440 @ 0.65Hz (0.76s / 0.76s) Alternating	Any	T 8	T 19
T 10	1000 (1s on, 1s off)x7 + (7s on, 1s off) - IM...	Any	T 34	T 1	T 42	561/760 @ 0.83Hz (0.60s / 0.60s) Alternating	Any	T 8	T 19
T 11	420(0.5s on, 0.5s off)x3 + 1s gap - ISO 8201 ...	Any	T 1	T 8	T 43	780/600 @ 0.96Hz (0.52s / 0.52s) Alternating	Any	T 8	T 19
T 12	1000(0.5s on, 0.5s off)x3 + 1s gap - ISO 8201...	Any	T 1	T 8	T 44	800/1000 @ 2Hz (0.25s / 0.25s) Alternating	Any	T 24	T 19
T 13	422/775 - (0.85 on, 0.5 off) x3 + 1s gap - ...	Any	T 1	T 8	T 45	970/800 @ 2Hz (0.25s / 0.25s) Alternating	Any	T 8	T 19
T 14	1000/2000 @ 1Hz - Singapore	Any	T 3	T 35	T 46	800/1000 @ 0.875Hz (0.57s / 0.57s) Alternating	Any	T 24	T 19
T 15	300 Continuous	Any	T 24	T 35	T 47	2400/2900 @ 2Hz (0.25s / 0.25s) Alternating	Any	T 24	T 19
T 16	440 Continuous	Any	T 24	T 35	T 48	500/1200 @ 0.3Hz (1.67s / 1.67s) Sweeping	Any	T 24	T 12
T 17	470 Continuous	Any	T 24	T 35	T 49	560/1055 @ 0.18Hz (2.73s / 2.73s) Sweeping	Any	T 24	T 12
T 18	500 Continuous - IMO code 2 (Low)	Any	T 24	T 35	T 50	560/1055 @ 3.3Hz (0.15s / 0.15s) Sweeping	Any	T 24	T 12
T 19	554 Continuous	Any	T 24	T 35	T 51	600/1250 @ 0.125Hz (4s / 4s) Sweeping	Any	T 24	T 12
T 20	660 Continuous	Any	T 24	T 35	T 52	660/1200 @ 1Hz (0.50s / 0.50s) Sweeping	Any	T 24	T 12
T 21	800 Continuous - IMO code 2 (High)	Any	T 24	T 35	T 53	800/1000 @ 1Hz (0.50s / 0.50s) Sweeping	Any	T 24	T 12
T 22	1200 Continuous	Any	T 24	T 35	T 54	800/1000 @ 7Hz (0.07s / 0.07s) Sweeping	Any	T 24	T 12
T 23	2000 Continuous	Any	T 3	T 35	T 55	800/1000 @ 50Hz (0.01s / 0.01s) Sweeping	Any	T 24	T 12
T 24	2400 Continuous	Any	T 20	T 35	T 56	2400/2900 @ 7Hz (0.07s / 0.07s) Sweeping	Any	T 24	T 12
T 25	440 @ 0.83Hz (0.60s on, 0.60s off) Intermittent	Any	T 44	T 8	T 57	2400/2900 @ 1Hz (0.50s / 0.50s) Sweeping	Any	T 24	T 12
T 26	470 @ 0.9Hz (0.55s on, 0.55s off) Intermittent	Any	T 44	T 8	T 58	2400/2900 @ 50Hz (0.01s / 0.01s) Sweeping	Any	T 24	T 12
T 27	470 @ 5Hz (0.10s on, 0.10s off) Intermittent	Any	T 44	T 8	T 59	2500/3000 @ 2Hz (0.25s / 0.25s) Sweeping	Any	T 24	T 12
T 28	544 @ 1.14Hz (0.43s on, 0.44s off) Intermittent	Any	T 24	T 8	T 60	2500/3000 @ 7.7Hz (0.65s / 0.65s) Sweeping	Any	T 24	T 12
T 29	655 @ 0.875Hz (0.57s on, 0.57s off) Intermittent	Any	T 44	T 8	T 61	800Hz Motor Siren	Any	T 24	T 12
T 30	660 @ 0.28Hz (1.80s on, 1.80s off) Intermittent	Any	T 24	T 8	T 62	1200Hz Motor Siren	Any	T 24	T 12
T 31	660 @ 3.3Hz (0.15s on, 0.15s off) Intermittent	Any	T 24	T 8	T 63	2400Hz Motor Siren	Any	T 24	T 12
T 32	745 @ 1Hz (0.50s on, 0.50s off) Intermittent	Any	T 24	T 8	T 64	Simulated Bell	Any	T 21	T 12