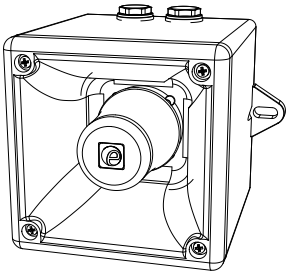


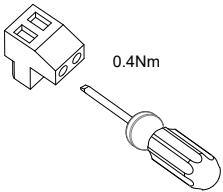
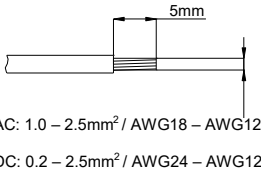
INSTRUCTION & SERVICE MANUAL
A105N AlertAlarm Sounder

- -40°C to +66C (-40°F to 151°F)
- Type 4 / 4X / 3R / 13, IP66
- 0.75Kg (1.65lb)
- CE, UKCA, DNV, MED, MER, A105NDC024 CPR compliant
- All units UL Listed



Unit Type Code	Nominal Voltage	Voltage Range	Nominal Current*	Nominal SPL	Max SPL	Average SPL
A105NDC024	12 V dc	10-60Vdc	17mA	105.3dB(A) Tone 44 @ 1m	110.9dB(A) Tone 4 @ 1m	105.2dB(A) All tones @1m
	24V dc		33.5mA			
	48V dc		113mA			
A105NAC230	48V ac	24 - 260Vac / 60-260Vdc	42mA	105.3dB(A) Tone 44 @ 1m	110.9dB(A) Tone 4 @ 1m	105.2dB(A) All tones @1m
	115V ac		25mA			
	230V ac		17mA			

*Nominal current at nominal voltage, Tone 1



Attention: Installation must be carried out by an electrician in compliance with the latest codes and regulations.

Attention: L'installation doit être effectuée par un électricien conformément aux derniers codes et réglementations.

Achtung: Die Installation muss von einem Elektriker gemäß den neuesten Vorschriften und Bestimmungen durchgeführt werden.

Attenzione: L'installazione deve essere eseguita da un elettricista in conformità con i codici e le normative più recenti.

Atención: La instalación debe ser realizada por un electricista de acuerdo con los últimos códigos y regulaciones.

Atenção: A instalação deve ser realizada por um eletricista de acordo com os códigos e regulamentos mais recentes.

Внимание: установка должна выполняться электриком в соответствии с последними нормами и правилами.

Attention: Disconnect from power source before installation or service to prevent electric shock

Attention: Débranchez-le de la source d'alimentation avant l'installation ou l'entretien pour éviter tout choc électrique.

Achtung: Vor Installation oder Wartung von der Stromquelle trennen, um einen Stromschlag zu vermeiden.

Attenzione: scollegare dall'alimentazione prima dell'installazione o dell'assistenza per evitare scosse elettriche.

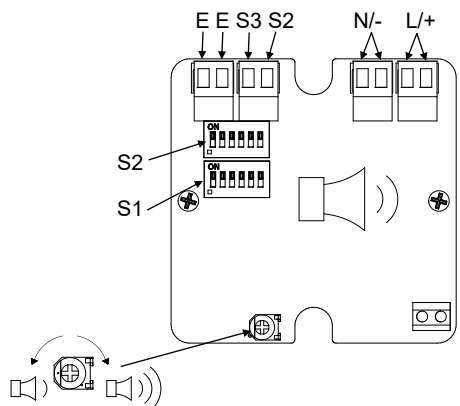
Atención: desconéctelo de la fuente de alimentación antes de la instalación o el servicio para evitar descargas eléctricas.

Atenção: Desconecte da fonte de alimentação antes da instalação ou serviço para evitar choque elétrico

Внимание: отключите от источника питания перед установкой или обслуживанием, чтобы предотвратить поражение электрическим током.

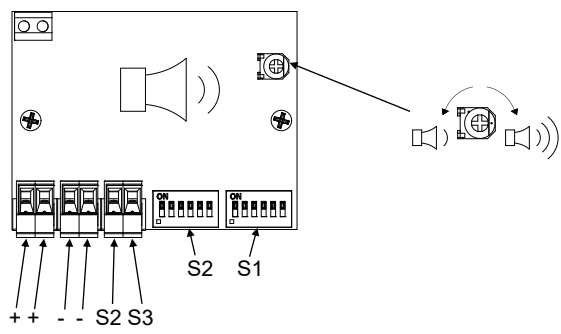
AC

(See D218-06-005)



DC

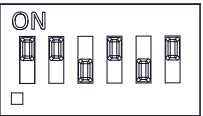
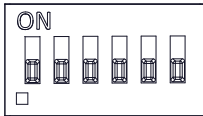
(See D218-06-001)



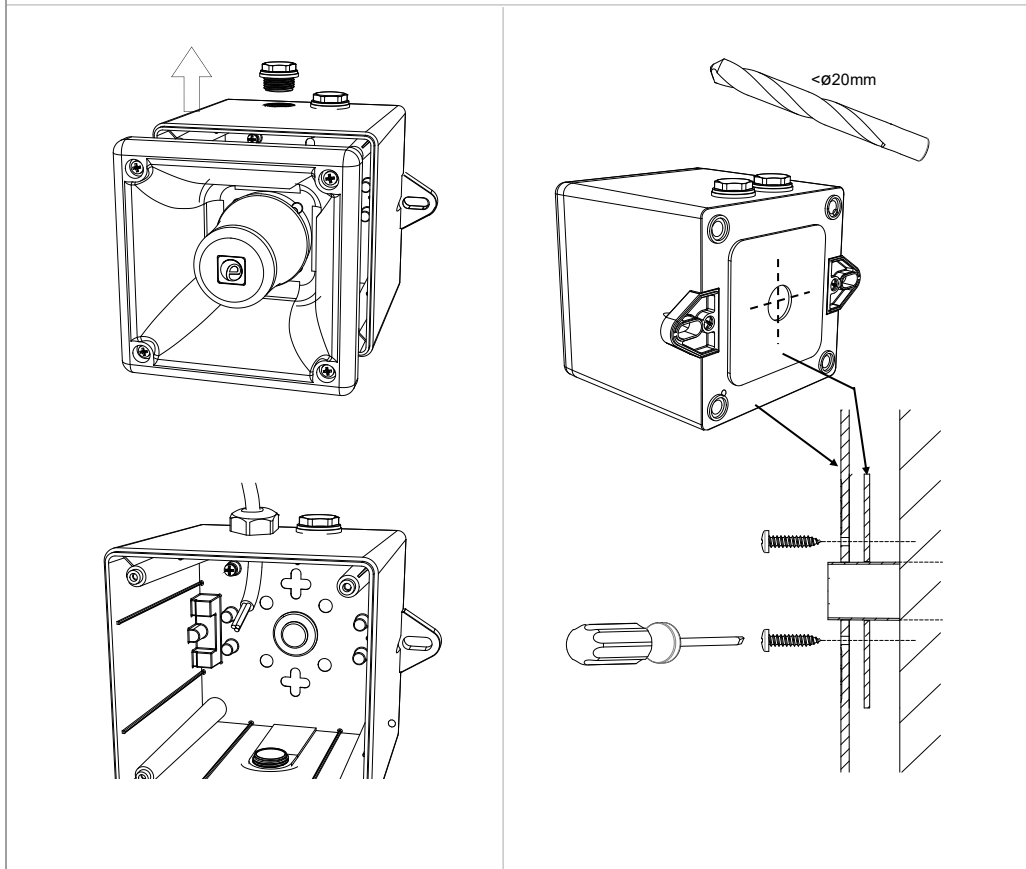
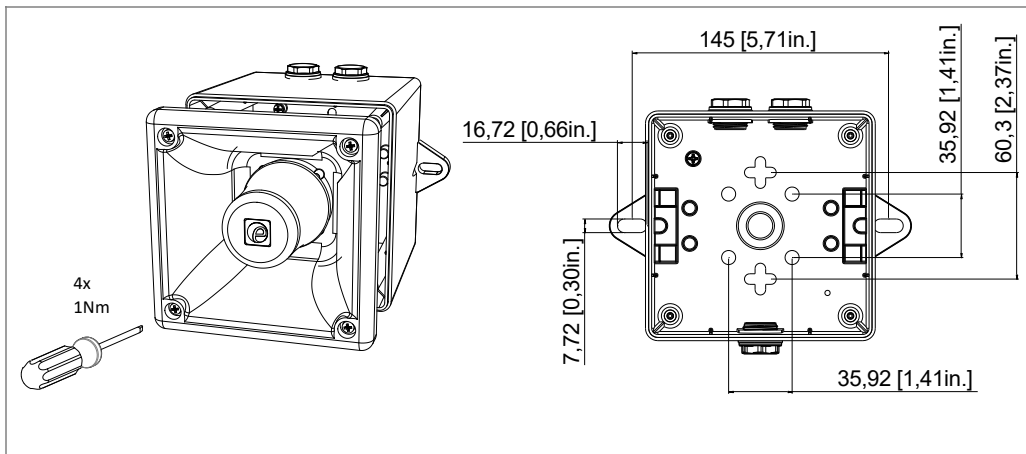
(AC & DC, See D221-95-001)

Default = S2 - Tone 1

Default = S1 - Tone 44



(ON = 1, OFF = 0)



Construction Product Regulation

- A105NDC024 is compliant to EN54-3:2001+A1+A2
- Alarm devices – Sounder for use in fire detection and fire alarm systems installed in and around buildings
- Type 4 / 4X / 3R / 13, IP66, Independently tested to EN60529:1991, (IP33C Compliant to EN54-3)
- Type B Product, For Indoor & Outdoor use
- Observe Precautions for handling electrostatic devices
- -25°C to +55°C compliant to EN54-3
- Cable Glands must be suitably sealed and meet minimum IP33 for EN54-3 applications
- Storage Temperature: -40°C to +70°C
- Maintenance – None
- Mounting - Units can be mounted using the 2-off ø7mm holes or through the back of the housing using the supplied gasket seal

Order Code: A105NDC024
Voltage Range: 18-60Vdc
Nominal Voltage: 24Vdc / 48Vdc
Max Current: 125mA @ 60Vdc
DOP: DP-2821-CPR-0107
UKCA Cert: 0843-CPR-1005
EU Cert: 2821-CPR-0107



A105NDC024 @ 1m

Horizontal Sound Output Max Voltage (60 Vdc) LAFmax,T dB(A)							Horizontal Sound Output Min Voltage (18 Vdc) LAFmax,T dB(A)					
Angle	Tone 44	Tone 8	Tone 2	Tone 21	Tone 31	Tone 5	Tone 44	Tone 8	Tone 2	Tone 21	Tone 31	Tone 5
15°	93.9	94.6	93.7	94	91	91.8	90.8	91.2	90.5	90.9	88	89.1
45°	99.6	101.4	100.1	99.7	96.6	98.2	96.5	98.3	96.9	96.6	93.5	95.7
75°	102.5	103.9	103.5	102.6	102	100.6	100	101.1	100.6	100.1	98.7	98
105°	102.5	103.9	103.4	102.7	102	100.6	100	101.1	100.6	100.3	98.8	98.2
135°	99.5	101.4	100.1	99.7	96.4	98.1	96.4	98.2	96.9	96.6	93.5	95.5
165°	94.1	94.8	93.7	94.1	90.6	91.8	91.1	91.5	90.5	91.1	87.6	89.2
Vertical Sound Output Max Voltage (60 Vdc) LAFmax,T dB(A)							Vertical Sound Output Min Voltage (18 Vdc) LAFmax,T dB(A)					
Angle	Tone 44	Tone 8	Tone 2	Tone 21	Tone 31	Tone 5	Tone 44	Tone 8	Tone 2	Tone 21	Tone 31	Tone 5
15°	93.8	94.7	93.5	94.3	90.2	91.8	90.7	91.5	90.2	91.2	87.3	89.2
45°	99.6	101.4	100.1	100	96.4	98.3	96.5	98.4	97	96.9	93.4	95.7
75°	103	104.2	103.7	103.2	101.5	100.6	99.8	101.1	100.5	100.1	98.5	98.1
105°	102.6	104.2	103.4	102.6	101.8	100.5	100	101	100.6	100	99	98
135°	99.5	101.4	100.1	99.8	96.4	98.3	96.3	98.2	97	96.6	93.5	95.7
165°	94.3	94.5	93.6	94.6	89.8	91.6	91.2	91.2	90.4	91.5	96.8	88.8

INSTRUCTION & SERVICE MANUAL

A105N AlertAlarm Sounder

- All models are approved for use as Audible Signal Appliance for use as General Signaling: UL464A & CSA C22.2 No 205-17
- Type 4 / 4X / 3R / 13, IP66

- 40°C to +66°C / -40°C to +151°F

General Signaling Canada:

A105NDC024: -40°C to +55°C / -40°F to +131°F

A105NAC230: -40°C to +40°C / -40°F to +104°F



- To maintain Ingress Protection, cable entries must be fitted with suitably rated cable glands or stopping plugs
- EOL Monitoring (DC Only): End of Line Devices may be fitted between the +ve & -ve terminals of the PCBA. Please ensure that the device legs meet the wire size range stated for the connection terminals and are fitted correctly in order to avoid a short. Refer to the compatible control panel specification for EOL device values and ratings.

Model	Nominal Voltage	Voltage Range	Nominal Operating Current [#]	Max Operating RMS*
A105NDC024	12V dc	10 - 60V ac	17mA	125mA
	24V dc		33.5mA	
	48V dc		113mA	
A105NAC230	48V ac	24 - 260V ac 50/60Hz / 60-260V dc	42mA	42.5mA
	115V ac		25mA	
	230V ac		17mA	

*Max Operating current for worst-case input voltage; [#]Nominal current at nominal voltage and Tone 12

SIL 2 Reliability Data

Reliability and Functional safety IEC/EN61508 which has been assessed and is considered suitable for use in low demand safety function:

1. Random Hardware Failures and Systematic Failures and (route 2_u).

2. As an unvoted item (i.e. hardware fault tolerance of 0) at SIL 2.

The product was assessed against failure modes:

- Failure sound or annunciate

3. When employing the device in a SIL2 compliant system the user should ensure frequent or continuous automatic

monitoring of continuity and current draw, refer to specific model nominal current draw data.

Integrity in respect of failure to function	SIL2 & SIL1
Total Failure rate	0.3 pmh
"Hazardous" failure rate (revealed)	0 pmh
"Hazardous" failure rate (unrevealed)	0.3 pmh
"Safe" failure rate (revealed)	0 pmh
"Safe" failure rate (unrevealed)	0 pmh
System type	B
Hardware Fault Tolerance	0
Diagnostic Coverage	>80%
PDF (hazardous failure)	1.3 x 10 ⁻³
Proof Test Interval	Up to 1 year

The units have been tested and approved to DNVGL-CG-0339 & EN54-3:2014 incl. A1:2019 for the installation on ships in the following locations:

Temperature: A, B, C & D (Machinery spaces, control rooms, accommodation, bridge, inside cubicles, desks, etc..., pump rooms, holds, rooms with no heating, Open deck, masts)

Humidity: A & B (All locations)

Vibration: A (Bulkheads, Beams, Deck, Bridge)

EMC: A (All locations except Bridge & open deck)

Enclosure: A, B & C, IP66 (Control rooms, accommodation, bridge, engine room, open deck masts, below floor plates in engine room)

The units comply with Solas 74 Chapter II-2, Regulation 7 & Chapter X, Regulation 3 for installation on ships in the following locations:

Temperature: D (Location -25° to +70°C)

Vibration: A (General Applications)

EMC: A (General Power Distribution Zone)

Enclosure: IP66, Salt mist



0575/2024



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FIRE INSTRUCTION & SERVICE MANUAL
A105N Range AlertAlarm Sounder UL464 / CAN/ULC-S525
Model: A105NDC



Attention: Installation must be carried out by an electrician in compliance with the National Electrical Code, NFPA 70, and the National Fire Alarm Signaling Code, NFPA 72 or CSA 22.1 Canadian Electrical Code, Part I, Safety Standard for Electrical Installations, Section 32. / L'installation doit exclusivement être réalisée par du personnel qualifié, conformément au code national d'électricité américain, NFPA 70, et le code national d'alarme incendie et de signalisation NFPA 72 ou CSA 22.1 Code canadien de l'électricité, première partie, norme de sécurité relative aux installations électriques, Section 32

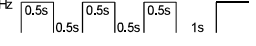


Attention: Disconnect from power source before installation or service to prevent electric shock / Débranchez-le de la source d'alimentation avant l'installation ou l'entretien pour éviter tout choc électrique.



Attention: Do not paint / Ne pas Peinturer

- -40°C to +66°C / -40°F to +151°F
- Units can be mounted using the 2-off ø7mm holes in the mounting lugs or through the back of the housing using the supplied gasket seal.
- A105NDC024 is approved for use as an audible signal appliance for fire alarm use – Public Mode (UL464 & CAN/ULC-S525) and produces a minimum sound pressure level of US: 79.97dB(A) ; CA: 91.2dB(A) at 10 feet (figures @ worst case 10Vdc).
- A105NDC024 produces a minimum sound pressure level of US: 88.8dB(A) ; CA: 99.8dB(A) at 10 feet (@ 24Vdc)
- For Fire Alarm applications, the Sounder Volume must be at the highest setting, (see volume control section). For fire alarm use, Tone 12 as shown below must be selected:

Stage 1 Set DIP SW 1 Tone No.	Tone Description	Tone Visual	Stage 1 & 2 DIP SW 1/2 Settings 1 2 3 4 5 6	Stage 3 Set DIP SW 1 (S3)	Stage 4 Set DIP SW 1 (S2 + S3)
12	1000Hz(0.5s on, 0.5s off)x3 + 1s gap ISO 8201 Temporal Pattern	1000Hz 	1 1 0 1 0 0	1	8

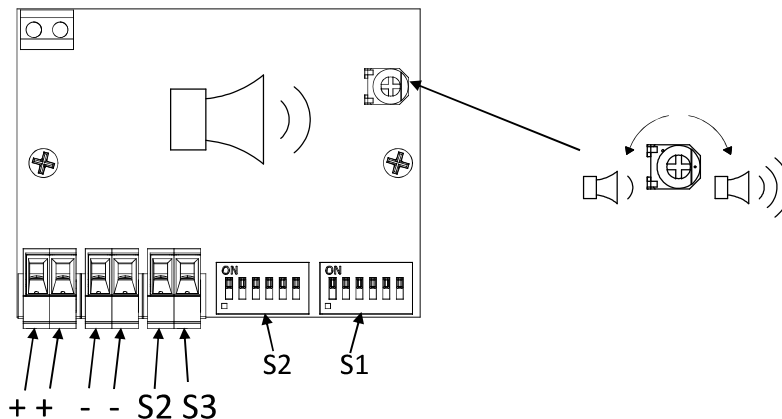
- Connection Terminals: Pluggable
AC: 1.0 - 2.5mm² / AWG18 - AWG12
DC: 0.2 - 2.5mm² / AWG24 - AWG12
- Terminal Tightening torque 0.4Nm
- To maintain Ingress Protection, cable entries must be fitted with suitably rated cable glands or stopping plugs
- Units can be located indoor or outdoor wet use, wall or ceiling mounted and there are no limitations on orientation
- Factory finishes are not intended to be modified

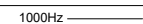
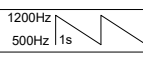
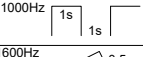
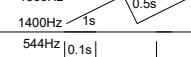
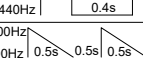
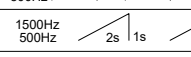
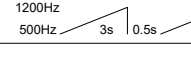
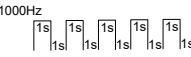
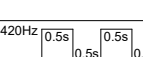
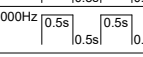
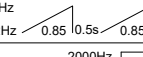
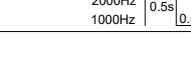
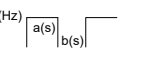
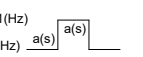
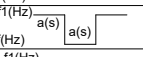
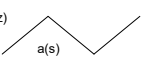
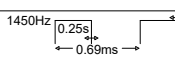
Surge Current Ratings for use in fire alarm systems

Model	Nominal Voltage	Voltage Range	Initial Peak	Initial RMS
A105NDC024	24V dc	10 - 60V dc	298mA	56.4mA

A105NDC024 Sounder Directional Characteristics for Canadian Fire CAN/ULC-S525 at 10 feet

Horizontal Axis				Vertical Axis			
Angle	OSPL	Angle	OSPL	Angle	OSPL	Angle	OSPL
Ref.90°	101 dB(A)	Ref. 90°	101 dB(A)	Ref. 90°	100.9 dB(A)	Ref. 90°	100.9 dB(A)
113°	-3 dB(A)	67°	-3 dB(A)	113.5°	-3 dB(A)	64°	-3 dB(A)
125°/147°	-6 dB(A)	52°	-6 dB(A)	130°/148°	-6 dB(A)	47°	-6 dB(A)
180°	86.1 dB(A)	0°	86.1 dB(A)	180°	86.5 dB(A)	0°	86.1 dB(A)



Stage 1 Set DIP SW 1 Tone No.	Tone Description	Tone Visual	Stage 1 & 2 DIP SW 1/2 Settings 1 2 3 4 5 6	Stage 3 Set DIP SW 1 (S3)	Stage 4 Set DIP SW 1 (S2 + S3)
1	1000Hz PFEER Toxic Gas		0 0 0 0 0 0	2	44
2	1200/500Hz @ 1Hz DIN /PFEER P.T.A.P.		1 0 0 0 0 0	3	44
3	1000Hz @ 0.5Hz(1s on, 1soff) PFEER Gen. Alarm		0 1 0 0 0 0	2	44
4	1.4KHz-1.6KHz 1s, 1.6KHz-1.4KHz 0.5s NF C 48-265		1 1 0 0 0 0	24	1
5	544Hz(100mS)/440Hz (400mS) NF S 32-001		0 0 1 0 0 0	19	1
6	1500/500Hz - (0.5s on , 0.5s off) x3 + 1s gap AS4428		1 0 1 0 0 0	44	1
7	500-1500Hz Sweeping 2 sec on 1 sec off AS4428		0 1 1 0 0 0	44	1
8	500/1200Hz @ 0.26Hz (3.3son, 0.5s off) Netherlands - NEN 2575		1 1 1 0 0 0	24	35
9	1000Hz (1s on, 1s off)x7 + (7s on, 1s off) IMO Code 1a		0 0 0 1 0 0	34	1
10	1000Hz (1s on, 1s off)x7 + (7s on, 1s off) IMO Code 1a		1 0 0 1 0 0	34	1
11	420Hz(0.5s on, 0.5s off)x3 + 1s gap ISO 8201 Temporal Pattern		0 1 0 1 0 0	1	8
12	1000Hz(0.5s on, 0.5s off)x3 + 1s gap ISO 8201 Temporal Pattern		1 1 0 1 0 0	1	8
13	422/775Hz - (0.85 on, 0.5 off) x3 + 1s gap NFPA - Temporal Coded		0 0 1 1 0 0	1	8
14	1000/2000Hz @ 1Hz Singapore		1 0 1 1 0 0	3	35
15	300Hz Continuous (f=300)		0 1 1 1 0 0	24	35
16	440Hz Continuous (f=440)		1 1 1 1 0 0	24	35
17	470Hz Continuous (f=470)		0 0 0 0 1 0	24	35
18	500Hz Continuous IMO code 2 (Low) (f=500)		1 0 0 0 1 0	24	35
19	554Hz Continuous (f=554)		0 1 0 0 1 0	24	35
20	660Hz Continuous (f=660)		1 1 0 0 1 0	24	35
21	800Hz IMO code 2 (High) (f=800)		0 0 1 0 1 0	24	35
22	1200Hz Continuous (f=1200)		1 0 1 0 1 0	24	35
23	2000Hz Continuous (f=2000)		0 1 1 0 1 0	3	35
24	2400Hz Continuous (f=2400)		1 1 1 0 1 0	20	35
25	440Hz @0.83Hz (50 cycles/minute) Intermittent (f=440, a=0.6, b=0.6)		0 0 0 1 1 0	44	8
26	470Hz @0.9Hz - 1.1s Intermittent (f=470, a=0.55, b=0.55)		1 0 0 1 1 0	44	8
27	470Hz @5Hz - (5 cycles/second) Intermittent (f=470, a=0.1, b=0.1)		0 1 0 1 1 0	44	8
28	544Hz @ 1.14Hz - 0.875s Intermittent (f=470, a=0.43, b=0.44)		1 1 0 1 1 0	24	8
29	655Hz @ 0.875Hz Intermittent (f=655, a=0.57, b=0.57)		0 0 1 1 1 0	44	8
30	660Hz @0.28Hz - 1.8sec on, 1.8sec off Intermittent (f=660, a=1.8, b=1.8)		1 0 1 1 1 0	24	8
31	660Hz @3.34Hz - 150mS on, 150mS off Intermittent (f=660, a=0.15, b=0.15)		0 1 1 1 1 0	24	8
32	745Hz @ 1Hz Intermittent (f=745, a=0.5, b=0.5)		1 1 1 1 1 0	24	8
33	800Hz - 0.25sec on, 1 sec off Intermittent (f=800, a=0.25, b=1)		0 0 0 0 0 1	24	8
34	800Hz @ 2Hz IMO code 3.a (High) Intermittent (f=800, a=0.25, b=0.25)		1 0 0 0 0 1	24	8
35	1000Hz @ 1Hz Intermittent (f=1000, a=0.5, b=0.5)		0 1 0 0 0 1	24	8
36	2400Hz @ 1Hz Intermittent (f=2400, a=0.5, b=0.5)		1 1 0 0 0 1	24	8
37	2900Hz @ 5Hz Intermittent (f=2900, a=0.1, b=0.1)		0 0 1 0 0 1	24	8
38	363/518Hz @ 1Hz Alternating (f=363, f1=518, a=0.1)		1 0 1 0 0 1	8	19
39	450/500Hz @ 2Hz Alternating (f=450, f1=500, a=0.25)		0 1 1 0 0 1	8	19
40	554/440Hz @ 1Hz Alternating (f=440, f1=554, a=0.5)		1 1 1 0 0 1	24	19
41	554/440Hz @ 0.625Hz Alternating (f=440, f1=554, a=0.8)		0 0 0 1 0 1	8	19
42	561/760Hz @0.83Hz (50 cycles/minute) Alternating (f=561, f1=760, a=0.6)		1 0 0 1 0 1	8	19
43	780/600Hz @ 0.96Hz Alternating (f=600, f1=780, a=0.52)		0 1 0 1 0 1	8	19
44	800/1000Hz @ 2Hz Alternating (f=800, f1=1000, a=0.25)		1 1 0 1 0 1	24	19
45	970/800Hz @ 2Hz Alternating (f=800, f1=970, a=0.25)		0 0 1 1 0 1	8	19
46	800/1000Hz @ 0.875Hz Alternating (f=800, f1=1000, a=0.57)		1 0 1 1 0 1	24	19
47	2400/2900Hz @ 2Hz Alternating (f=2400, f1=2900, a=0.25)		0 1 1 1 0 1	24	19
48	500/1200Hz @ 0.3Hz Sweeping (f=500, f1=1200, a=3.34)		1 1 1 1 0 1	24	12
49	560/1055Hz @ 0.18Hz Sweeping (f=560, f1=1055, a=5.47)		0 0 0 0 1 1	24	12
50	560/1055Hz @ 3.3Hz Sweeping (f=560, f1=1055, a=0.3)		1 0 0 0 1 1	24	12
51	600/1250Hz @ 0.125Hz Sweeping (f=600, f1=1250, a=8)		0 1 0 0 1 1	24	12
52	660/1200Hz @ 1Hz Sweeping (f=660, f1=1200, a=1)		1 1 0 0 1 1	24	12
53	800/1000Hz @ 1Hz Sweeping (f=800, f1=1000, a=1)		0 0 1 0 1 1	24	12
54	800/1000Hz @ 7Hz Sweeping (f=800, f1=1000, a=0.14)		1 0 1 0 1 1	24	12
55	800/1000Hz @ 50Hz Sweeping (f=800, f1=1000, a=0.02)		0 1 1 0 1 1	24	12
56	2400/2900Hz @ 7Hz Sweeping (f=2400, f1=2900, a=0.14)		1 1 1 0 1 1	24	12
57	2400/2900Hz @ 1Hz Sweeping (f=2400, f1=2900, a=1)		0 0 0 1 1 1	24	12
58	2400/2900Hz @ 50Hz Sweeping (f=2400, f1=2900, a=0.02)		1 0 0 1 1 1	24	12
59	2500/3000Hz @ 2Hz Sweeping (f=2500, f1=3000, a=0.5)		0 1 0 1 1 1	24	12
60	2500/3000Hz @ 7.7Hz Sweeping (f=2500, f1=3000, a=0.13)		1 1 0 1 1 1	24	12
61	800Hz Motor Siren (f=800, a=1.6)		0 0 1 1 1 1	24	12
62	1200Hz Motor Siren (f=1200, a=2)		1 0 1 1 1 1	24	12
63	2400Hz Motor Siren (f=2400, a=1.7)		0 1 1 1 1 1	24	12
64	Simulated Bell		1 1 1 1 1 1	21	12

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OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED. RECOMMENDED MINIMUM VALUES: 14V MAX SYSTEM = 120Ω MIN, 2W MIN OR 1KΩ MIN, 0.5W MIN 28V MAX SYSTEM = 470Ω MIN, 2W MIN OR 2.4KΩ MIN, 0.5W MIN																	
Single Stage Configuration				Config.: 1a		Two Stage Configuration				Config.: 1b		Three/Four Stage Configuration				Config.: 1c	
Line Monitoring						Common Positive						Common Positive					
Stage 1: Apply Power to Stage 1 +ve & Stage 1 -ve						Stage 1: Apply Power to Common +ve & Stage 1 -ve Stage 2: Apply Power to Common +ve & Stage 1 -ve & connect Stage 2 -ve to Stage 1 -ve						Stage 1: Apply Power to Common +ve & Stage 1 -ve Stage 2: Apply Power to Common +ve & Stage 1 -ve & connect Stage 2 -ve to Stage 1 -ve Stage 3: Apply Power to Common +ve & Stage 1 -ve & connect Stage 3 -ve to Stage 1 -ve Stage 4: Apply Power to Common +ve & Stage 1 -ve & connect Stage 2 -ve & Stage 3 -ve to Stage 1 -ve					
DRAWING TO BS8888:2000 GEOMETRIC TOLERANCES TO ISO1101:1983 LINEAR DIMENSIONAL TOLS ANGULAR DIMENSIONAL TOLS				DRAWN R.S.RAIT DATE 16/03/2021		SURFACE FINISH WEIGHT (Kg)		THIS DRAWING AND ANY INFORMATION OR DESCRIPTIVE MATTER THEREIN IS COMMUNICATED IN CONFIDENCE AND IS THE COPYRIGHT PROPERTY OF EUROPEAN SAFETY SYSTEMS LTD. NEITHER THE WHOLE OR ANY EXTRACT MAY BE DISCLOSED, LOANED, COPIED OR USED FOR MANUFACTURING OR TENDERING PURPOSES WITHOUT THEIR WRITTEN CONSENT. EUROPEAN SAFETY SYSTEMS LTD. AS PER LATEST DATE OF ISSUE SHOWN ABOVE				 warning signals EUROPEAN SAFETY SYSTEMS LTD IMPRESS HOUSE MANSELL ROAD ACTON LONDON W3 7QH WWW.E2S.COM		ALL DIMENSIONS IN MM IF IN DOUBT, ASK - DO NOT SCALE A3			
STANDARDS ALERTALARM RANGE				CHECKED B.ISARD DATE 16/03/2021		MATERIAL ALTERNATIVE MATERIAL						TITLE A100, A105N & D105 DC SOUNDER WIRING DIAGRAMS					
				APPROVED R.N.POTTS DATE 16/03/2021								SCALE NTS		SHEET 1 OF 1		DRAWING NUMBER D218-06-001	

										8	9	10	
										ISSUE	MOD No.	REASON - INITIAL - DATE	
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