AGSMG MerlinGuard Gas Detection & Ventilation Control System

Product Overview:

The AGS Controls MerlinGuard is a gas detection & ventilation panel to be used with up to sixteen (16) AGSTFT detectors. It is intended for use in spaces that require either refrigerant, toxic or combustible gas detection and provides a pre-programmed control panel including features such as fan control options, alarm damper control, and connectivity to Building Management Systems (BMS).
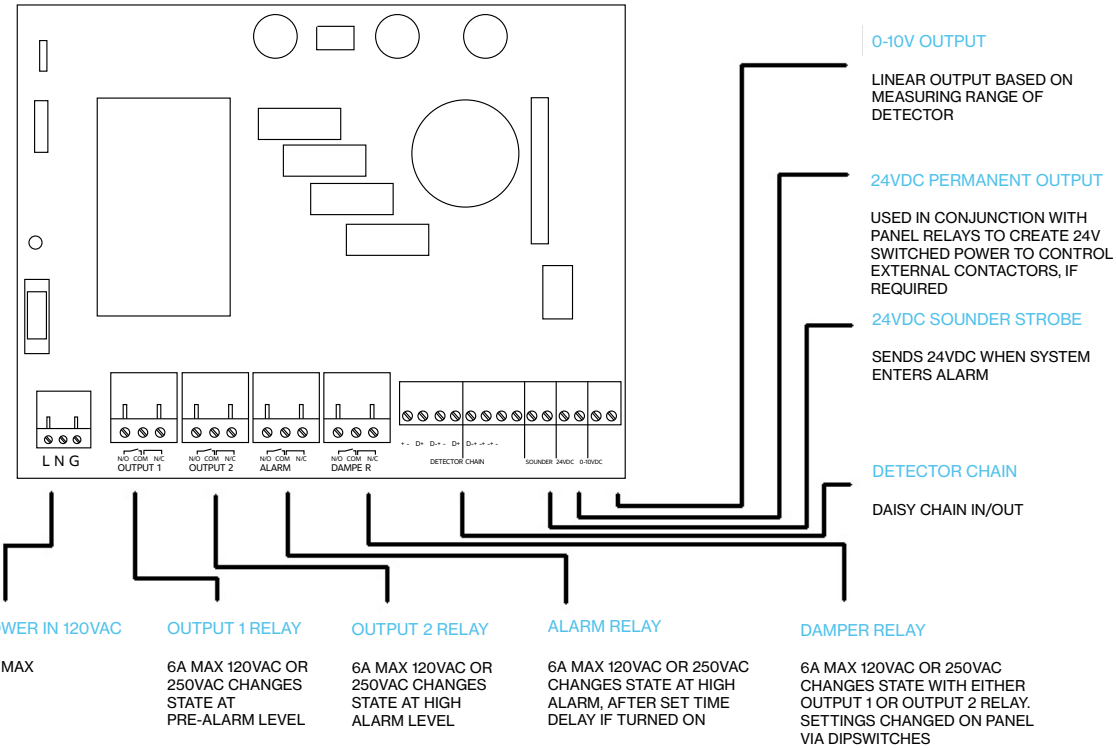
The panel has four output options for pre-alarm and high-alarm conditions, and contains a 0-10V output that can be utilized by the BMS or for fan control via VFD.
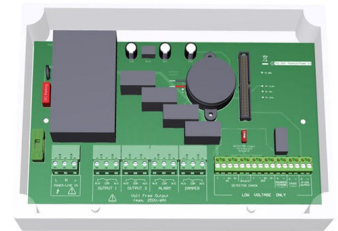
Technical Specifications

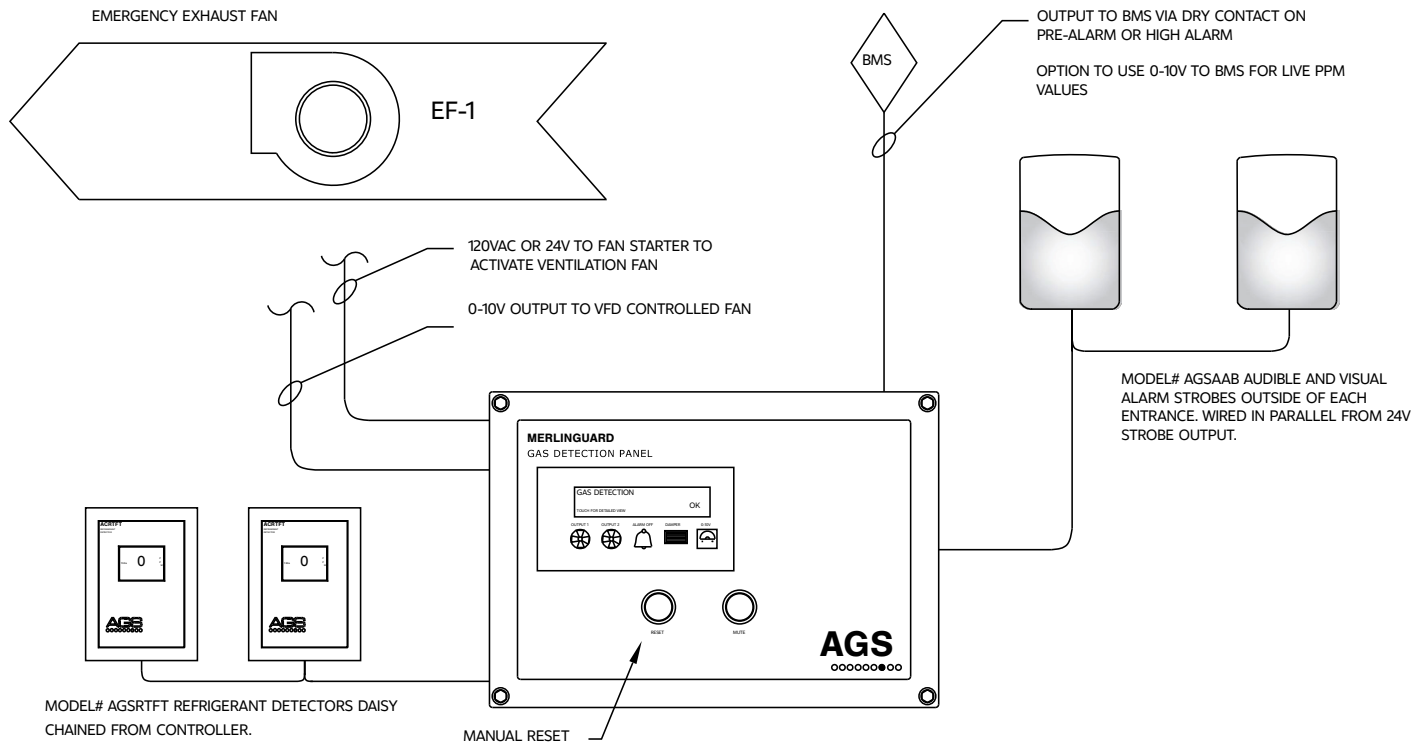| General	
Model:	AGSMG MerlinGuard
Capacity:	Up To 16 Channels Per Controller Unit
Size: (H x W x D)	7.08" x 10.03" x 3" Inches
Housing Material:	ABS Polyac - PA765 / UL 94 V-1
Mounting:	Indoor Use - Wall Mounting
Weight:	2lb 13.85oz
Display:	4.3" TFT Touch Screen
Visual Indicators:	Green: Normal	Amber:Alarm Delay	Yellow: Pre-Alarm	Red:Alarm
	Relay Outputs ON/OFF
	Gas Detection Status
Audible Alarm:	>70dB @ 3.28ft (1m). Quiet conditions
Buttons:	Common for Silence/Reset operation
Power Consumptions:	14.5W Max
AC Power:	100-120V - 50/60Hz
Internal Fuse:	T3.15A L250V
Relay Output::	Volt Free Relay Outputs x4 (non-latching) - NO/COM/NC 6A @ 120V
	User Configurable - Energised/De-Energised - Time Delay - 24VDC Switching
Common Output:	24VDC Permanent / 0-10VDC Variable
Ingress Protection:	Nema 4 / IP64 (See Manual For Further Information)
Operating:	14~122°F 30 ~ 80% RH (non-condensing)
Storage:	-13~122F° up to 95% RH (non-condensing)
Typical Wiring:	Power & Relay: ~#18-12AWG / Detector: #12-18AWG Power Pair; #18-22AWG Data Pair / Other: #18-22AWG
Electromagnetic Compatibility and Electrical Safety:	IEC 61010-1:2010 + AMD1:2016; EN 61010-1:2010 +A1:2019; UL61010-1/2012/ CAN CSA C22.2 No. 61010-1-12/ A1:2018-11 EMC EN 61326-1:2013

AGSMG MerlinGuard PCB Overview

0-10V OUTPUT

LINEAR OUTPUT BASED ON MEASURING RANGE OF DETECTOR

24VDC PERMANENT OUTPUT

USED IN CONJUNCTION WITH PANEL RELAYS TO CREATE 24V SWITCHED POWER TO CONTROL EXTERNAL CONTACTORS, IF REQUIRED

24VDC SOUNDER STROBE

SENDS 24VDC WHEN SYSTEM ENTERS ALARM

DETECTOR CHAIN

DAISY CHAIN IN/OUT

L N G
N/O COM N/C — OUTPUT 1
N/O COM N/C — OUTPUT 2
N/O COM N/C — ALARM
N/O COM N/C — DAMPER
DETECTOR CHAIN
SOUNDER 24VDC 0-10VDC

AGSRTFT DETECTOR

MERLINGUARD

POWER IN 120VAC

6A MAX

OUTPUT 1 RELAY

6A MAX 120VAC OR 250VAC CHANGES STATE AT PRE-ALARM LEVEL

OUTPUT 2 RELAY

6A MAX 120VAC OR 250VAC CHANGES STATE AT HIGH ALARM LEVEL

ALARM RELAY

6A MAX 120VAC OR 250VAC CHANGES STATE AT HIGH ALARM, AFTER SET TIME DELAY IF TURNED ON

DAMPER RELAY

6A MAX 120VAC OR 250VAC CHANGES STATE WITH EITHER OUTPUT 1 OR OUTPUT 2 RELAY. SETTINGS CHANGED ON PANEL VIA DIPSWITCHES

EMERGENCY EXHAUST FAN

EF-1

OUTPUT TO BMS VIA DRY CONTACT ON PRE-ALARM OR HIGH ALARM

OPTION TO USE 0-10V TO BMS FOR LIVE PPM VALUES

BMS

120VAC OR 24V TO FAN STARTER TO ACTIVATE VENTILATION FAN

0-10V OUTPUT TO VFD CONTROLLED FAN

MODEL# AGSAAB AUDIBLE AND VISUAL ALARM STROBES OUTSIDE OF EACH ENTRANCE. WIRED IN PARALLEL FROM 24V STROBE OUTPUT.

MERLINGUARD
GAS DETECTION PANEL

GAS DETECTION
TOUCH FOR DETAILED VIEW
OK
OUTPUT 1 OUTPUT 2 ALARM DRY DAMPER 0-10V

RESET   MUTE

AGS

MODEL# AGSRTFT REFRIGERANT DETECTORS DAISY CHAINED FROM CONTROLLER.

MANUAL RESET

1. Use the high alarm relay (output 2) to send 120VAC or 24VAC power to the fans to activate them. This design would require two fans. One fan would cover your standby airflow rate, and the second fan would turn on during a gas detected scenario and increase the ventilation rate to the emergency extraction rate defined by ASHRAE of 100X the standby rate. Use ASHRAE 8.9.8.1 to calculate ventilation rate.

2. Use the 0-10V output to signal a VFD control fan, and have it run at a continuous standby rate and ramp up to the emergency extraction rate upon detection. The 0-10V output will send a linear voltage signal to the VFD based on the sensing range of the detector.

PRODUCT SPEC SHEET Refrigerant Detector

AGS CONTROLS *A Division of American Gas Safety*

AGSRTFT NDIR Refrigerant Detector Compatible with MerlinGuard

- 24VAC or DC Power Input
- Standalone Detector or Used with an AGS Controller
- Traffic Light Indicator Display Changes Color Dependent On Gas Levels
- MODBUS Communications
- Modern & Compact Design
- Alarm Relay Dry Contact
- Plug & Play Installation
- In-Built Audible Alarm

Product Overview

The TFT range of AGS detectors work in combination with the AGS Merlin range of Gas Detection panels and Utility Controllers. The AGSRTFT features an NDIR sensor for industrial and commercial indoor applications. Compact, modern, digital design makes the units aesthetically pleasing and easy to install.

Detectable Gases and Part Numbers

GAS	Model#	Pre Alarm (PPM)	High Alarm (PPM)	Mounting Height
R-1233zd	RTFT-PRO-1233ZD	75	1000	1ft A.F.F.
R-1234yf	RTFT-PRO-1234YF	75	1000	1ft A.F.F.
R-1234yf	RTFT-LITE-1234YF	175	1000	1ft A.F.F.
R-1234ze	RTFT-PRO-1234ZE	75	1000	1ft A.F.F.
R-1234ze	RTFT-LITE-1234ZE	175	1000	1ft A.F.F.
R-123	RTFT-PRO-123		50	1ft A.F.F.
R-125	RTFT-PRO-125	75	1000	1ft A.F.F.
R-134a	RTFT-PRO-134A	75	1000	1ft A.F.F.
R-134a	RTFT-LITE-134A	175	1000	1ft A.F.F.
R-143a	RTFT-PRO-143A	75	1000	1ft A.F.F.
R-227ea	RTFT-PRO-227EA	75	1000	1ft A.F.F.
R-22	RTFT-PRO-22	75	1000	1ft A.F.F.
R-32	RTFT-PRO-32	75	1000	1ft A.F.F.
R-32	RTFT-LITE-32	350	1000	1ft A.F.F.
R-404a	RTFT-PRO-404A	75	1000	1ft A.F.F.
R-404a	RTFT-LITE-404A	175	1000	1ft A.F.F.
R-407a	RTFT-PRO-407A	75	1000	1ft A.F.F.
R-407c	RTFT-PRO-407C	75	1000	1ft A.F.F.
R-407c	RTFT-LITE-407C	175	1000	1ft A.F.F.
R-407f	RTFT-PRO-407F	75	1000	1ft A.F.F.
R-410a	RTFT-PRO-410A	75	1000	1ft A.F.F.
R-410a	RTFT-LITE-410A	350	1000	1ft A.F.F.
R-417a	RTFT-PRO-417A	75	1000	1ft A.F.F.

GAS	Model#	Pre Alarm (PPM)	High Alarm (PPM)	Mounting Height
R-422a	RTFT-PRO-422A	75	1000	1ft A.F.F.
R-422d	RTFT-PRO-422D	75	1000	1ft A.F.F.
R-424a	RTFT-PRO-424A	75	990	1ft A.F.F.
R-427a	RTFT-PRO-427A	75	1000	1ft A.F.F.
R-434a	RTFT-PRO-434A	75	1000	1ft A.F.F.
R-438a	RTFT-PRO-438A	75	990	1ft A.F.F.
R-442a	RTFT-PRO-442A	75	1000	1ft A.F.F.
R-448a	RTFT-PRO-448A	75	860	1ft A.F.F.
R-449a	RTFT-PRO-449A	75	800	1ft A.F.F.
R-449a	RTFT-LITE-449A	175	800	1ft A.F.F.
R-450a	RTFT-PRO-450A	75	880	1ft A.F.F.
R-452a	RTFT-PRO-452A	75	790	1ft A.F.F.
R-452b	RTFT-PRO-452B	75	870	1ft A.F.F.
R-453a	RTFT-PRO-453B	75	1000	1ft A.F.F.
R-454a	RTFT-PRO-454A	75	690	1ft A.F.F.
R-454b	RTFT-PRO-454B	75	850	1ft A.F.F.
R-454b	RTFT-LITE-454B	385	850	1 ft A.F.F
R-454c	RTFT-PRO-454C	75	620	1ft A.F.F.
R-455a	RTFT-PRO-455A	75	650	1ft A.F.F.
R-507	RTFT-PRO-507	75	1000	1ft A.F.F.
R-513a	RTFT-PRO-513A	75	650	1ft A.F.F.
R-515a	RTFT-PRO-515A	75	810	1ft A.F.F.
R-515b	RTFT-PRO-515B	75	810	1ft A.F.F.

AGSRTFT Technical Specifications

General	
Model:	AGSRTFT-***
Target Gases:	See table above
Size: (H x W x D)	5.95 x 4.37 x 1.97" (151 x 111 x 50mm)
Housing Material:	ABS Polylac - PA765
Mounting:	1FT A.F.F. - Indoor Use - Wall Mounted
Weight:	Max. 1.77oz (0.05kg)
User Interface	
Display:	1.8" TFT Color Digital Display
Screen Brightness:	Non-Adjustable
Visual Indicators:	TFT visual. Green: Normal; Yellow: Pre-Alarm; Red: Alarm
Audible Alarm:	>95dB @ 3.28ft (1m)
Buttons:	None
Language:	English
Power Supply	
Power Consumption:	90mA Max @ 24vdc
DC Power:	12-32 VDC - Nominal 24 VDC
Internal Fuse:	None
Equipment	
Overvoltage Category:	III
Pollution Degree:	3
I/O	
Relay:	Volt Free (Normally Closed / Common / Normally Open) 1x 30vdc 2A (Non-Latching)
Environmental	
Operating:	-10 ~ 50°C / 14 ~ 122°F 30 ~ 80% RH (non-condensing)
Storage:	-25 ~ 50°C / -13~122F° up to 95% RH (non-condensing)
Atmospheric Pressure:	70-110kPa
Altitude Rating:	<9500ft
Wiring	
Typical	#18-24AWG Power Pair; #18-24AWG Data Pair-Tinned copper.
Approvals	
Electromagnetic Compatibility and Electrical Safety	BS/IEC/EN 61010-1 EMC EN
Other	
Communication	RS485 MODBUS RTU

A. 3.74 inch

B. 5.51 inch

C. 1.18 inch

Power [+]
Negative [-]
Bus Data [D+]
Bus Data [D-]
Shield
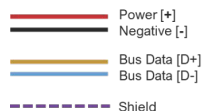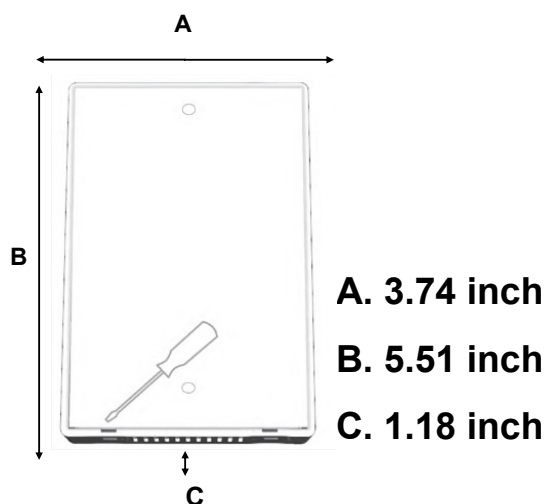
Multiple detectors daisy chained in series

24Vdc Power Input/Output & Data
Compatible with the Merlin GDP-X range.

Resistance Termination 120ohm Switch

Detector ID Switches

Audible Buzzer Alarm On/Off Switch

24Vdc Power & Current Loop
Compatible with the Merlin GDP range

BMS Integration

Circuit Simulation Test Button
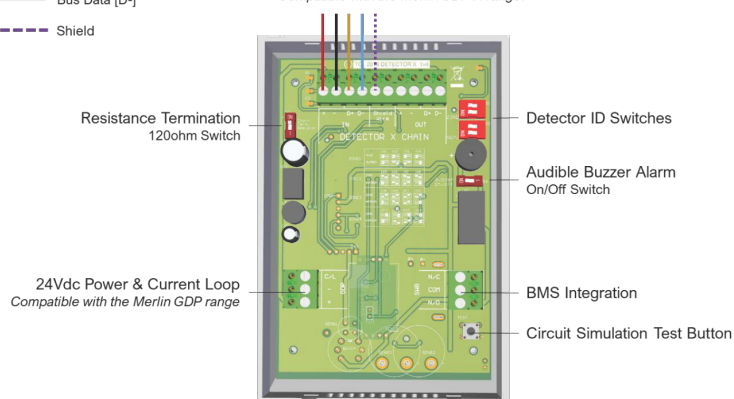
AGSAABLP 24V Low Power Alarm Strobe

Audible / Visual Alarm Beacon

The AGSAABLP is a remote visual and audible alarm beacon designed for use with the AGS gas detection series of products, including the GDP, MerlinGuard, and ParkSafe controllers. The AGSAABLP offers a highly effective way to alert of a hazardous gas leak condition. The low power model give the capabilities to have more strobes from one panel. The AGS detection products feature integral alarm buzzers, but the AGSAABLP offers redundancy and alarm in remote locations.

Features
- Offers 32 different tones
- Includes 10 high density LEDs
- For indoor use only, see AGSAALP-WC for a weatherproof cover
- Low power consumption which allows for multiple strobes from one control panel
- Durable polycarbonate construction
- Made in the USA

Compatible Accessories
- AGSAABLP-WC weatherproof cover

Wiring to AGS Control Panels

The AGS Control panels provide 12-24V dedicated outputs for alarm strobes. The diagram below shows a general detail on how the strobe wires to the control panel. The control panel terminal configurations may vary from panel to panel. See the control panel user manuals for more details on the strobe outputs.
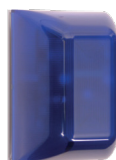
Control Panel

Strobe

+ 0V
504mA max
STROBE
12V DC

+ 0V
STROBE
12V DC

+ −
12−24V
DC IN

+ 0V
KEY
SWITCH

+ 0V
ALARM
SWITCH

NC COM NO
DRY
CONTACT

FACTORY INSTALLED JUMPER
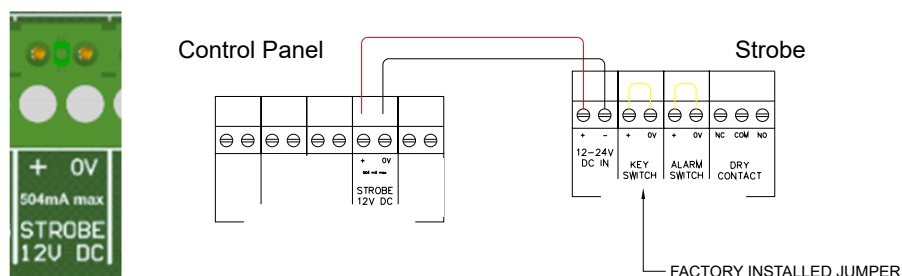
Additional Color Models

AGSAABLP-G   AGSAABLP-A   AGSAABLP-W   AGSAABLP-B

AGSAABLP 24V Low Power Alarm Strobe

Technical Specifications	
Operating Voltage	12-24VDC
Power Consumption	Stand by: 50µA
	Siren low volume: 85mA
	Siren high volume: 90mA
	Strobe: 25mA
Siren Volume	Low: 85 dB at 1'
	High: 100 dB at 1'
Alert Tone	32 selectable sounds

3.25 in. (83mm)

4.83 in. (123mm)

FRONT

2.73 in. (69mm)
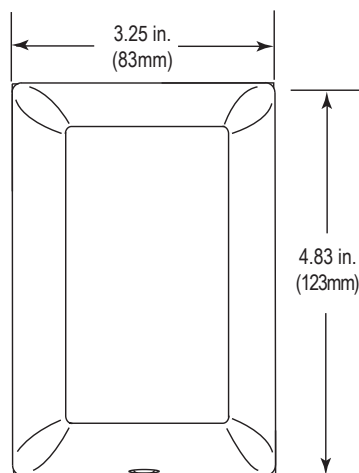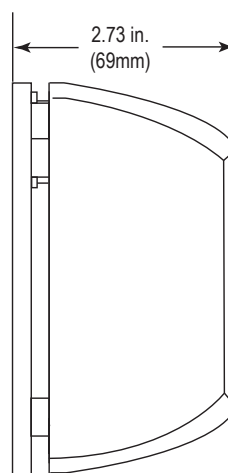
SIDE

AGSAAB-WC Alarm Strobe Cover

Product Overview

This enclosure is designed to prevent the AGSAAB from water ingress into the electrical housing, or junction box due to rain, hail, or snow. Constructed out of durable polycarbonate material and slotted for sound penetration, this cover will prevent water intrusion from exterior environments making the AGSAAB suitable for outdoor installation. Please contact us with any questions on use. This cover is designed to protect the AGSAAB in exterior environments in North America.
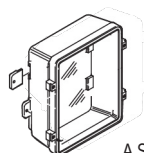
Compatible With AGSAAB and AGSAABLP

Approvals And Warranty

Tested and approved or listed by:

✓ Underwriter Laboratories and Canadian UL File S7025

✓ cUL Approval For UL 1638 Only

✓ CSFM Needs Local Approval
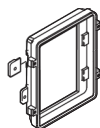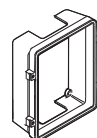
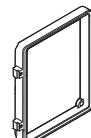✓ ADA Compliant

UL Listed for Fire Voice Speakers

A SPACER   B SPACER   C SPACER   D SPACER   E SPACER

DIMENSIONS			
Spacer	H	W	D
-A	8.5 in. (216mm)	6.5 in. (165mm)	6.25 in. (159mm)
-B	8.5 in. (216mm)	6.5 in. (165mm)	3.5 in. (89mm)
-C	8.5 in. (216mm)	6.5 in. (165mm)	4.75 in. (120mm)
-D	8.5 in. (216mm)	6.5 in. (165mm)	5.75 in. (146mm)
-E	8.5 in. (216mm)	6.5 in. (165mm)	4 in. (102mm)

DEPTH

WIDTH

HEIGHT

AGS

AMERICAN GAS SAFETY

c (UL) us LISTED
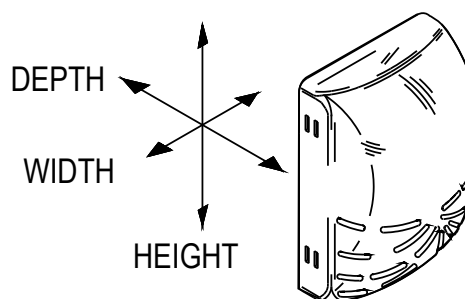
AGS-ESO
Datasheet

Emergency Shut Off
Push Button With Twist-Reset

EMERGENCY GAS SHUT OFF

EMERGENCY POWER OFF
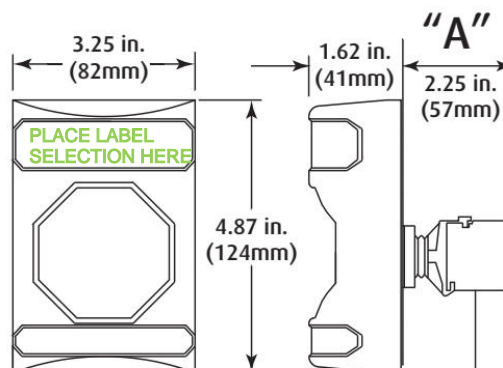
EMERGENCY BOILER OFF

Product Overview

The AGS-ESO multipurpose push button can be used for a wide range of applications with the AGS Merlin range of safety systems.

The AGS-ESO is a twist re-set, flush mounted button and comes with a clear protective cover to provide accidental activations.

Key Features

✓ Protects against vandalism, accidental damage, dust and grime

✓ Indoor use only

✓ Twist release reset

✓ ADA Compliant

✓ Various colors, text & design types available upon request

✓ 5VA Flammability Rating

Construction

✓ Station housing molded of tough polycarbonate

✓ UL listed to U.S. and Canadian safety standards

Specification

✓ Indoor use only. Not recommended for outdoor/water applications.

✓ Temperature range of button 15º to 120ºF (-9º to +49ºC).

✓ 1 N.O. and 1 N.C. contact. 1 AMP @ 250 VDC 3 AMP @ 600VAC

✓ All terminals accept two 12 to 18 (AWG

Dimensions

3.25 in. (82mm)

PLACE LABEL SELECTION HERE

4.87 in. (124mm)

1.62 in. (41mm)

"A"

2.25 in. (57mm)

Note: Provide adequate clearence for installation using a deep back box. May require 5/8" spacer kit

EMERGENCY GAS SHUT OFF

EMERGENCY POWER OFF

EMERGENCY BOILER OFF

AGS
AMERICAN GAS SAFETY

AGSMGFS

Manual Fan Switch Assembly Comes with Switch, Label, and Wall Mount Enclosure.

c **UL** us
LISTED

Find out more

Product Overview

The MGFS is a manual fan switch designed to be used with the American Gas Safety range of gas detection systems.

The MGFS provides two additional normally open, manually operated contacts to wire in parallel with any of the AGS systems' internal fan relays.

It is most commonly used with the AGS MerlinGuard Refrigerant Detection Control panel to comply with ASHRAE 15 requirements for manual fan activation switch when monitoring for A2L type refrigerants.

For detailed wiring schematic, please see information on the MerlinGuard A2L system.

Main Product Specs

Range of Product	Gas Detection Accessory
Product or Component Type	Selector switch
Device short name	MGFS MerlinGuard Fan Switch
Bezel material	Chromium plated metal
Fixing collar material	Zamak
Mounting diameter	0.9 in (22.5 mm)
Sale per indivisible quantity	1
Head type	Standard
Shape of signaling unit head	Round
Type of operator	stay put
Operator profile	Black standard handle
Operator position information	2 positions +/- 90°
Contacts type and composition	1 NO & 1NC
Connections - terminals	Screw clamp terminals, <= 2 x 1.5 mm² with cable end IEC 60947-1 Screw clamp terminals, >= 1 x 0.22 mm² without cable end IEC 60947-1

Complementary

Height (Switch Only)	1.9 in (47 mm)
Width (Switch Only)	1.2 in (30 mm)
Depth (Switch Only)	2.7 in (68 mm)
Net Weight (Switch Only)	0.231 lb(US) (0.105 kg)
Resistance to high pressure washer	1015.3 psi (7000000 Pa) 131.0000000000 °F (55 °C) 0.1 m
Contacts usage	Standard contacts
Torque value	1.24 lbf.in (0.14 N.m) NO changing electrical state
Mechanical durability	1000000 cycles
Tightening torque	7.08…10.6 lbf.in (0.8…1.2 N.m) IEC 60947-1
Shape of screw head	Cross Philips no 1 Cross pozidriv No 1 Slotted flat Ø 4 mm Slotted flat Ø 5.5 mm
Contacts material	Silver alloy (Ag/Ni)
Short-circuit protection	10 A cartridge fuse gG IEC 60947-5-1
[Ith] conventional free air thermal current	10 A IEC 60947-5-1
[Ui] rated insulation voltage	600 V 3)IEC 60947-1
[Uimp] rated impulse withstand voltage	6 kV IEC 60947-1
[Ie] rated operational current	3 A 240 V, AC-15, A600 IEC 60947-5-1 6 A 120 V, AC-15, A600 IEC 60947-5-1 0.1 A 600 V, DC-13, Q600 IEC 60947-5-1 0.27 A 250 V, DC-13, Q600 IEC 60947-5-1 0.55 A 125 V, DC-13, Q600 IEC 60947-5-1 1.2 A 600 V, AC-15, A600 IEC 60947-5-1
Electrical durability	1000000 cycles, AC-15, 2 A 230 V 3600 cyc/h 0.5 EN 60947-5-1 appendix C 1000000 cycles, AC-15, 3 A 120 V 3600 cyc/h 0.5 EN 60947-5-1 appendix C 1000000 cycles, AC-15, 4 A 24 V 3600 cyc/h 0.5 EN 60947-5-1 appendix C 1000000 cycles, DC-13, 0.2 A 110 V 3600 cyc/h 0.5 EN 60947-5-1 appendix C 1000000 cycles, DC-13, 0.5 A 24 V 3600 cyc/h 0.5 EN 60947-5-1 appendix C
Electrical reliability	$\Lambda < 10exp(-6)$ 5 V 1 mA in clean environment IEC 60947-5-4 $\Lambda < 10exp(-8)$ 17 V 5 mA in clean environment IEC 60947-5-4