AMERICAN GAS SAFETY

c UL US LISTED

MerlinGuard Datasheet

Gas Detection & Ventilation Control System

MerlinGuard Product Overview

The MerlinGuard is a gas detection panel designed by American Gas Safety (AGS) to be used with up to sixteen (16) AGS TFT 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.

The MerlinGuard is a compact and versatile solution for gas detection in various applications. Please contact AGS or your local representative for further information.

General	
Model:	MerlinGuard Controller
Capacity:	Up to 16 channels per controller unit.
Size: (H x W x D)	7.08 x 10.03 x 3” (180 x 255 x 77 mm)
Housing Material:	ABS Polylac - PA765. / UL 94 V-1
Mounting:	Indoor Use - Wall Mounting
Weight:	1.3kg (2lb 13.85oz)
Display:	4.3” TFT Touch Screen
Visual Indicators:	TFT visual. Green: Normal; Yellow: Pre-Alarm; Amber: Alarm Delay: Red: Alarm Relay Outputs On/Off / Gas Detection Status.
Audible Alarm:	>70dB @ 3.28ft (1m). Quiet conditions.
Buttons:	Common for Silence/Reset operation.
Power Consumption:	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 / 24 VDC switching.
Common Output:	24 VDC Permanent / 0-10 VDC Variable.
Ingress Protection:	IP64 / NEMA 4 (See manual for further information)
Operating:	-10 ~ 50°C / 14 ~ 122°F 30 ~ 80% RH (non-condensing)
Storage:	-25 ~ 50°C / -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/ EMC EN 61326-1:2013

MerlinGuard PCB Overview

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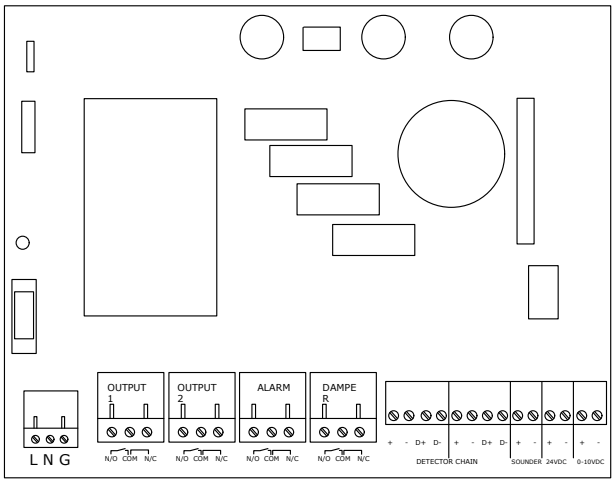


0-10V OUTPUT

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.

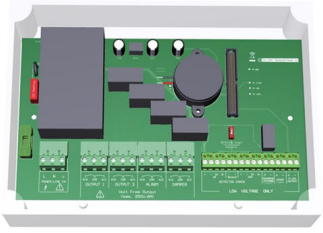
24VDC SOUNDER STROBE

SENDS 24VDC WHEN SYSTEM ENTERS ALARM

DETECTOR CHAIN

DAISY CHAIN IN/OUT

AGSTFT DETECTOR



MERLINGUARD

POWER IN 120VAC

6A MAX

OUTPUT 1 RELAY

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

OUTPUT 2 RELAY

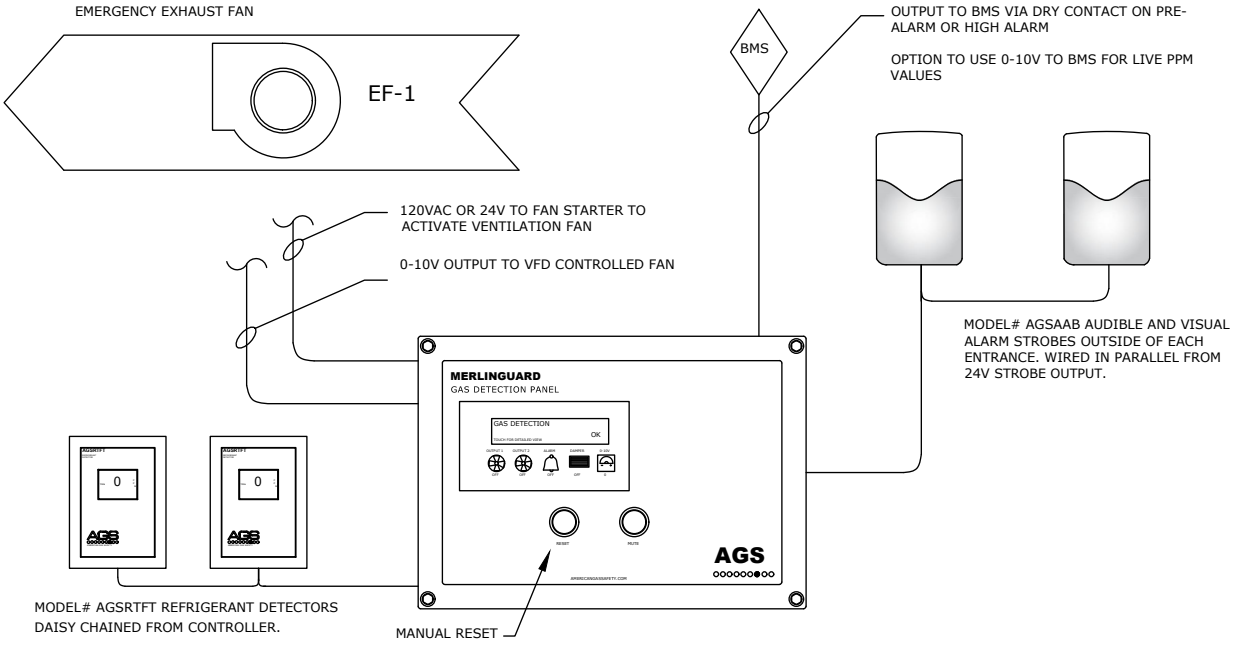
6A MAX
120VAC OR 250VAC
CHANGES STATE AT
HIGH ALARM LEVEL

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
PRE-ALARM or HIGH ALARM RELAY.
SETTINGS CHANGED ON PANEL
VIA DIP SWITCHES



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.

Find out more

American Gas Safety LLC

www.americangassafety.com

Head office:
6304 Benjamin Road, Suite 502, Tampa, FL 33634

Tel: (727) 608-4375
Email: info@americangassafety.com

AMERICAN GAS SAFETY

AGSRTFT
Data Sheet
Refrigerant Gas Detector

- 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.

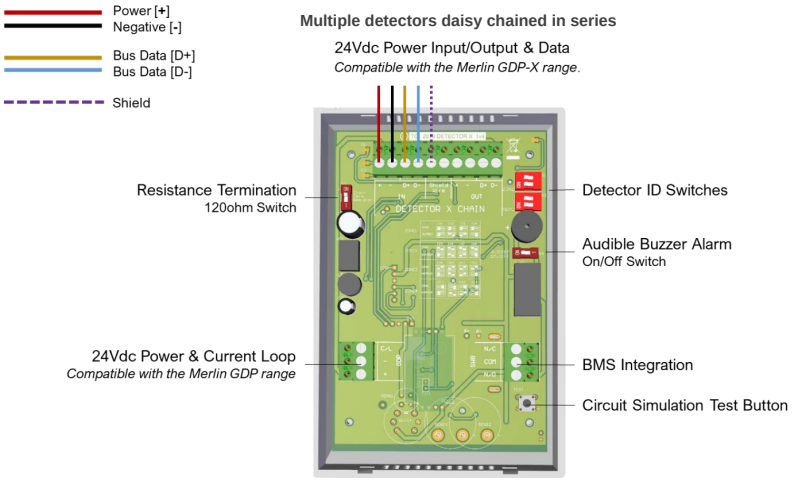
Detectable Gases and Part Numbers

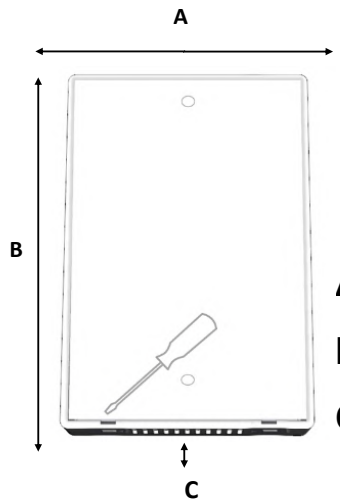
GAS	Model#	Pre Alarm (PPM)	High Alarm (PPM)	Mounting Height
R-1233zd	RTFT-PRO-1233ZD	75	1000	1ft A.F.F.
R-1234yf	RTFT-PRO-1234YF	75	1000	1ft A.F.F.
R-1234yf	RTFT-LITE-1234YF	175	1000	1ft A.F.F.
R-1234ze	RTFT-PRO-1234ZE	75	1000	1ft A.F.F.
R-1234ze	RTFT-LITE-1234ZE	175	1000	1ft A.F.F.
R-123	RTFT-PRO-123		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-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-514a	RTFT-PRO-514A	75	320	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.

Technical Specification

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

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www.americangassafety.com
Tel: (727) 608-4375
Email: info@americangassafety.com

AMERICAN GAS SAFETY

AGSAAB Datasheet

Audible Alarm Beacon

Product Overview

Here is a highly effective way to provide a visual and/or audible indication of an alarm. The combination of alarm and super bright flashing LEDs offer excellent protection for an array of circumstances as they draw attention in a hurry. The sirens and strobes will work in conjunction with our Merlin control panels. For other applications contact American Gas Safety for additional technical information.

Key Features

- Alarm/siren offers 32 selectable sounds and volume control.
- Include high intensity LEDs.
- 8 flash patterns.
- Typical working properties of polycarbonate are -40˚ to 250˚F (-40˚C to 121˚C).
- Three year guarantee against breakage of polycarbonate in normal use (one year on electro mechanical and electronic components).
- Designed to meet the requirements of IP54.

Technical Specifications

General	Installation
Model	AGSAAB
Operating Voltage	12VDC-24VDC
Operating Current	0.42A@12VDC, 0.22A@24VDC
Operating Temperature	-4°F - 140°F
Volume @1 foot	High 105dB, Low 85dB
8 Flash Patterns	Yes
Strobe Speed Control	No
32 Sounds	Yes
Strobe Only Control	Yes
Sound Only Control	Yes
Alarm Trigger	Trigger on power
Lens Tamper	N.C. 12VDC, 50mA Dry Contact
IP Rating	IP54

Construction

- Durable, polycarbonate construction.

Installation

- Operating environment temperatures for AGSAAB models -4F to 140F (-20C to 40C).

Electronics

- 12-24VDC power supply.

Options

- Available with amber, green, blue, red, white, lens.


AAB-B


AAB-A


AAB-W


AAB-G

Find out more

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AMERICAN GAS SAFETY

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AGS-ESO Datasheet

Emergency Shut Off Push Button With Twist-Reset

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

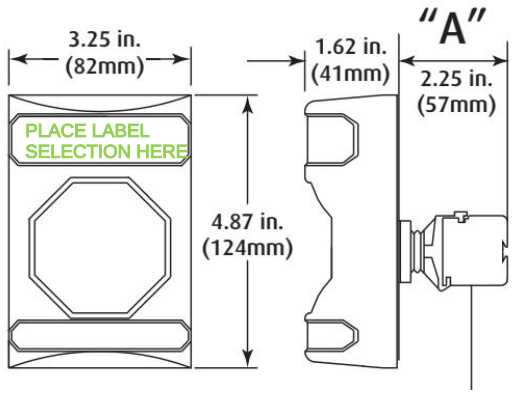
Construction

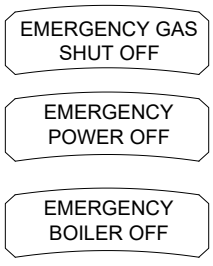
- ✓ Station housing molded of tough polycarbonate
- ✓ UL listed to U.S. and Canadian safety standards

Specification

- ✓ Two (2) Form "C" contacts, DPDT, rated 10 amps @ 125/250 VAC, 1/2 HP, 6 amps @ 30 VDC.
- ✓ Switch rating 10 amps @ 240 VAC resistive and has a timer range: 2 - 60 seconds (± 15%).
- ✓ 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.

Dimensions





AGSMGFS

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

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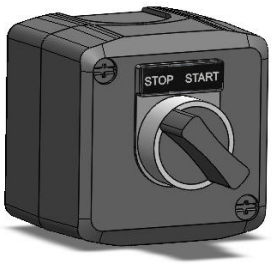
Find out more



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	Λ < 10exp(-6) 5 V 1 mA in clean environment IEC 60947-5-4 Λ < 10exp(-8) 17 V 5 mA in clean environment IEC 60947-5-4