MerlinGuard Datasheet

Gas Detection & Ventilation Control System

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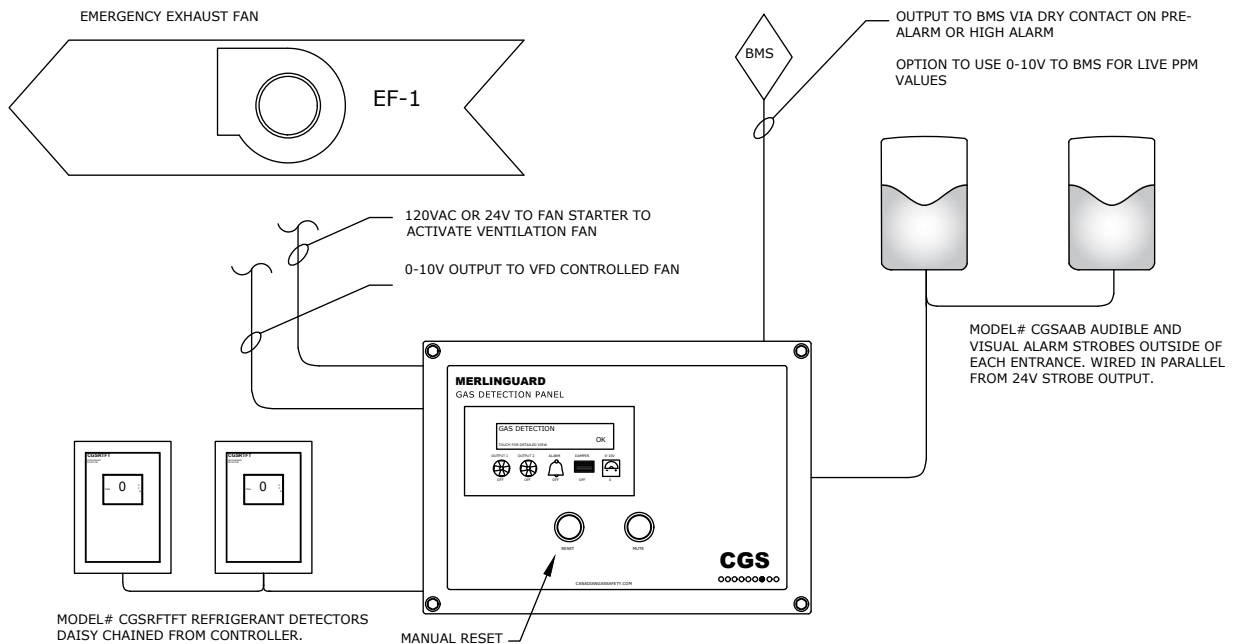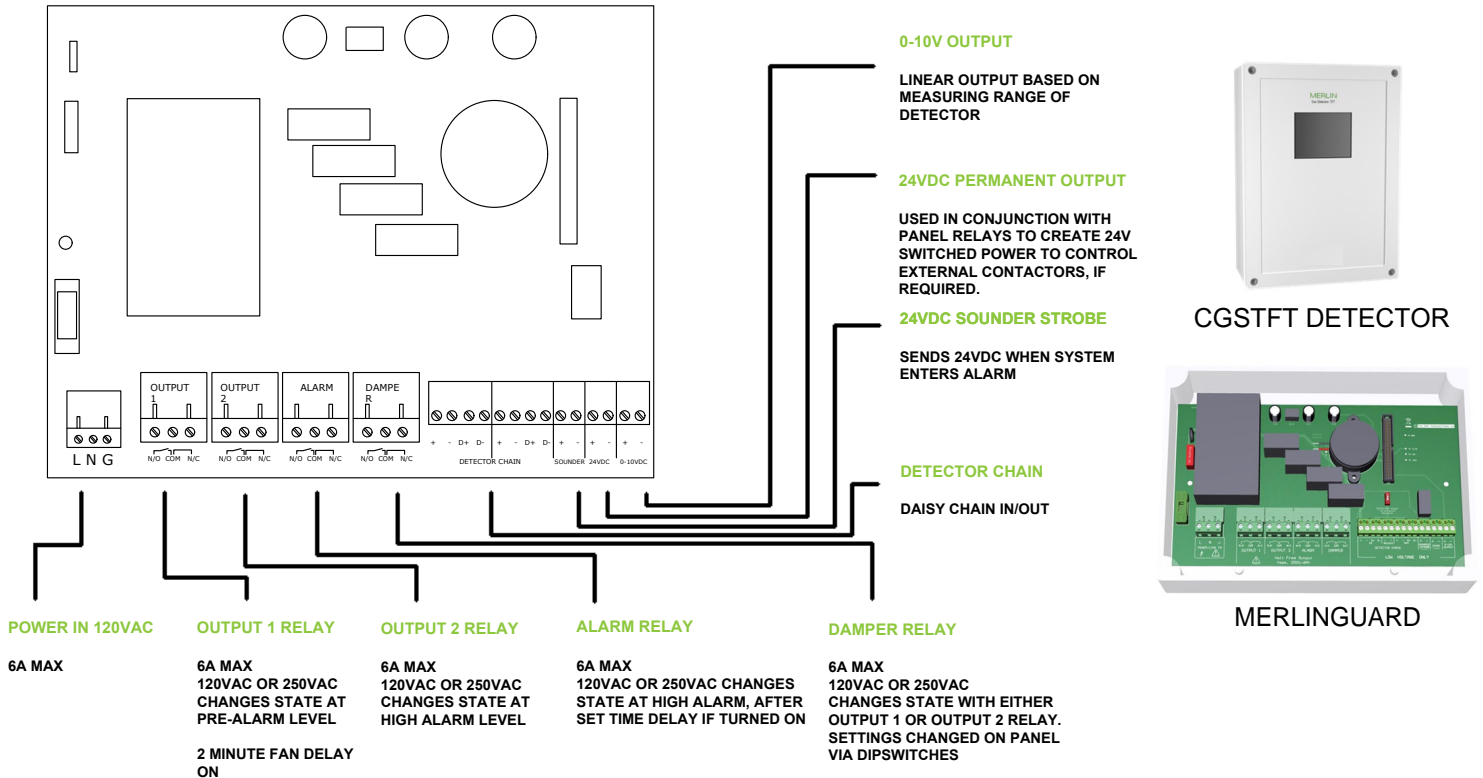## MerlinGuard Product Overview

The MerlinGuard is a gas detection panel designed by Canadian Gas Safety (CGS) to be used with up to sixteen (16) CGS 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 CGS 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

CGS
CANADIAN GAS SAFETY

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

CGSTFT DETECTOR

MERLINGUARD

OUTPUT 1 | OUTPUT 2 | ALARM | DAMPER
N/O COM N/C

L N G

+ - D+ D-   + - D+ D-   + -   + -   + -
DETECTOR CHAIN   SOUNDER 24VDC 0-10VDC

POWER IN 120VAC

6A MAX

OUTPUT 1 RELAY

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

2 MINUTE FAN DELAY ON

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

MERLINGUARD
GAS DETECTION PANEL

GAS DETECTION   OK
TOUCH FOR DETAILED VIEW

OUTPUT 1 OUTPUT 2 ALARM DAMPER 0-10V

CGS
CANADIANGASSAFETY.COM

RESET   MUTE

MODEL# CGSRFTFT 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.