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Merlin ParkSafe Datasheet

Gas Detection & Ventilation Control System

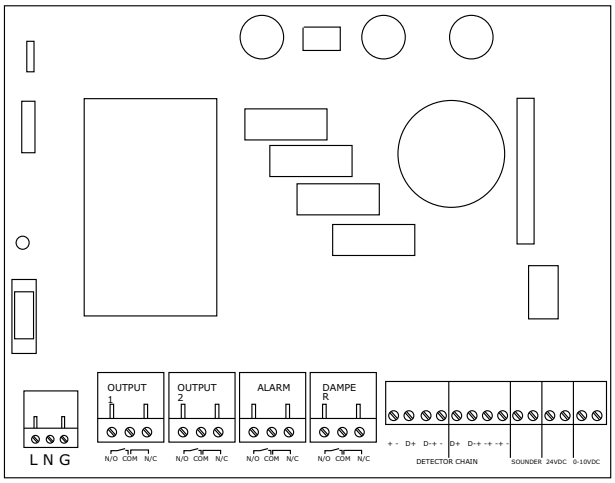
ParkSafe Product Overview

The ParkSafe Controller is designed for installations into car parking facilities and enclosed garages. Each Merlin ParkSafe Detector (Nitrogen Dioxide) and (Carbon Monoxide) is powered directly from the Merlin ParkSafe controller and communicates data through Modbus RTU. Up to 16 detectors can be powered/controlled by the ParkSafe, each detector can cover a 50ft radius. The system can automatically control ventilation systems according to gas levels and an optional temperature levels. The ParkSafe is capable of activating both the exhaust fan(s) and the air intake device(s) such as outside air louvers/dampers and make up air units.

The ParkSafe will make or break dry contacts internally on relay terminals [Output-1] and a second contact on [Output-2]. Another output relay will energize after [Output-2] has been active for an extended period. This is used for a link to a BMS or other external indication device. The ParkSafe controller also has a 0-10vdc output to allow the controller to drive VFD based on gas level outputs.

General	
Model:	PARKSAFE Controller
Capacity:	Up to 16 channels per controller unit.
Size: (H x W x D)	180 x 255 x 77 mm
Housing Material:	ABS Polylac - PA765. / UL 94 V-1
Mounting:	Indoor use - Wall Mounting
Weight:	1.3kg
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 @ 1m. Quiet conditions.
Buttons:	Common for Silence/Reset operation.
Power Consumption:	14.5W max.
AC Power:	230VAC~ 50/60Hz
Internal Fuse:	T3.15A L250V
Relay Output:	Volt Free Relay Outputs x4 (non-latching) / NO/COM/NC 6A @ 230V~ User configurable – energised/de-energised, time delay / 24 VDC switching.
Common Output:	24 VDC Permanent / 0-10 VDC Variable.
Ingress Protection:	NEMA 4 (See manual for further information)
Operating:	-10 ~ 50°C / 30 ~ 80% RH (non-condensing)
Storage:	-25 ~ 50°C / 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

ParkSafe PCB Overview



0-10V OUTPUT

5V OUTPUT AT 25PPM OF CO AND/OR 0.7PPM OF NO2. 10V OUTPUT AT 100PPM OR CO AND/OR 2PPM OF NO2

24VDC PERMANENT OUTPUT

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

24VDC SOUNDER STROBE

24VDC OUTPUT WHEN SYSTEM ENTERS ALARM: REMAINS RM: REMAINS ABOVE 100PPM AND/OR 0.7PPM M FOR TIME DELAYFOR TIME DELAY

DETECTOR CHAIN

DAISY CHAIN IN/OUT CO AND NO2 DETECTORS

POWER IN 230VAC

6A MAX

OUTPUT 1 RELAY

6A MAX
120VAC OR 250VAC
CHANGES STATE AT 25PPM OF CO AND/OR 0.7PPM OF NO2

OUTPUT 2 RELAY

6A MAX
120VAC OR 250VAC
CHANGES STATE AT 100PPM OF CO AND/OR 2PPM OF NO2

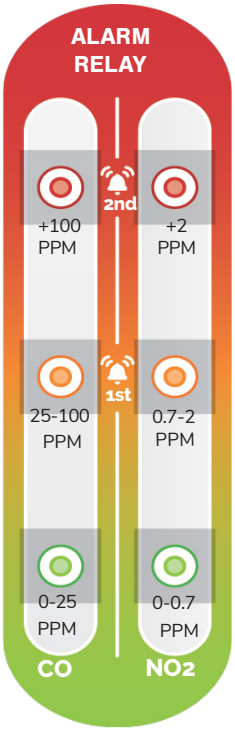
ALARM RELAY

6A MAX
120VAC OR 250VAC
CHANGES STATE WHEN LEVELS REMAIN ABOVE 100PPM OF CO AND/OR 2PPM OF NO2 FOR A SET TIME DELAY (5, 10, 15, 20 OR 25 MINUTES)

DAMPER RELAY

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

Alarm Levels



Alarm Condition
Occurs once levels remain above 'alarm level 2' for a set time delay.
System must be manually reset to de-activate audible/visual alarms.
Alarms can be silenced
Audible Alarm Beacon Activation
Internal Buzzer Activation
Alert BMS

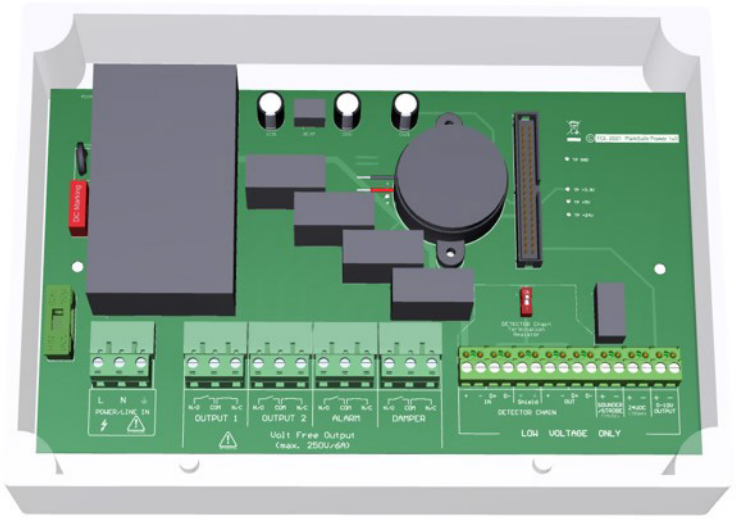
Alarm Level 2
System Displays 'Pre-Alarm'
Second Fan Activation Option
Second Damper Activation Option
Alert BMS

Alarm Level 1
System Displays 'Pre-Alarm'
Fan Activation to Increase Ventilation
Optional Damper Activation
Alert BMS

System OK
All System Fans are De-Activated
System Displays 'OK'

Clearly Labeled Relays and Outputs

Designed specifically for enclosed parking garages



Find out more

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