



# SHEPHERD

S A F E T Y S Y S T E M S

## DETAILED SPECIFICATIONS

### FEATURES

#### Standard PM2 Safety Features

**Emergency/Panic Alarm:** Push in red button and hold for 3 seconds

**Low-battery:** Configurable threshold

**Worker check-in:** Configurable timer (5-180 min, or off)

**Geo Fence:** Home Base, Calibration EOL notification

#### Additional Gas Alarm Features

**Time-weighted average (TWA) Short-term exposure limit (STEL)**

**High gas alert**

**Low gas alert**

**Bump test and calibration notification**

**Bump test and calibration failure alert**

### POWER / BATTERY

Rechargeable Li-Ion Battery 2000 mAh Li-on  
**Battery Life:** 8 days, 192 hours (at 70°F under normal usage)

**Charge Time:** 8 hours // MAX: 10 hours  
Charging status monitoring

### HARDWARE

ARM Cortex-M3 Microcontroller with up to 512kB Flash, 80kB RAM

Logging Data written to Flash Memory chip in a circular fashion. New data replaces oldest.

Entries are time stamped with the UTC time at the time they are written

Logs may be read by the host over the radio link

60 days of data in typical use.

Events of interest are written as they occur

- **Status Messages**
  - Start/End of Warning
  - Start/End of Alarm
  - Bump Test
- **Calibration**

Enough storage provided for at least 6 months, assuming:

- 1 Alarm/Day
- 1 Bump Test/Day
- 1 Calibration/Wk

Communicates to servers through base station and Shepherd Controller

### PM2 Wireless Radio

**Radio:** Zigbee, 2.4 GHz, TX Power: +18 dBm, Rx sensitivity: -101 dBm, Mesh Capable

**Antenna:** Internal

**Radio Link Range:** 598.4 Yards (547.1 Meters) Line of sight if not using Mesh Capability

### FUNCTIONS

#### Location Technology

**GPS Radio:** 72-channel high sensitivity  
**GPS Accuracy:** ~5m (16 ft.) Outdoors  
**Location Update Frequency:** Configurable  
**Default:** 60 seconds

#### User Notification

**Personal alarm indicators:** Speaker, LEDs, and vibration motor

**Sound pressure level:** ~90 dB @ 10 cm (~90 dB @3.94")

#### User Interface

Dot matrix liquid crystal display with front lighting, menu system

Driven by 2 button keypad for Power (On/Off), Check In, Emergency/Panic

#### Wireless Updates

**Device configuration changes:** Yes

**Device firmware upgrade over-the-air (FOTA):** Yes

### Shepherd Portal Application:

Safety monitoring application, highly customizable for every customer requirement

Includes live map, alert management, device configurations, alert setups, and reporting

### MODEL NUMBERS

**PM Dual-gas:** SS-PM2G-LTTT

**PM Single-gas:** SS-PM1G-TTT

**PM Quad-gas:** SS-PM4G-LTTTO

### ENVIRONMENTAL

**Storage temperature:** -30°C to 60°C (-22°F to 140°F)

**Operating temp.:** -20°C to 50°C (-4°F to 122°F)

**Charging temp.:** 0°C to 45°C (32°F to 113°F)

**Ingress Protection:** IP67

### GAS SENSOR OPTIONS

#### H2S (Hydrogen Sulfide):

**Sensor type:** Electrochemical

**Range:** 0-100ppm

**Resolution:** 1ppm

#### LEL Combustible:

**Sensor type:** NDIR

**Range:** 0-100% LEL

**Resolution:** 1% LEL

#### COSH (Hydrogen Sulfide, Carbon Monoxide):

**Sensor type:** Electrochemical

**Range H2S:** 0-100ppm

**Resolution H2S:** 0.2ppm

**Range CO:** 0-400ppm

**Resolution CO:** 1 ppm

#### SO2 (Sulfur Dioxide):

**Sensor type:** Electrochemical

**Range:** 0-100ppm

**Resolution:** 0.1ppm

#### O2 (Oxygen, lead-free):

**Sensor type:** Long-life pump electrochemical

**Range:** 0-25% vol

**Resolution:** 0.1% vol

### CERTIFICATIONS

**IEC 60079-0, 60079-11 Class | Zone 0 Group II C / Class I Div 1 Group A, B, C, D T4 IP67 certification**

### WARRANTY

**PM2:** Two yea

