DFI

Modular Touch Computer Design Helps Create The Most Flexible Gas Monitoring System

Numerous gas monitoring systems are installed worldwide, especially potential dangers from toxic and explosive gases. Onshore or offshore, inside or outside, DFI's unique modular touch computer assists in the development of gas monitoring instruments to provide customers with safer and more flexible solutions to meet stringent hazardous gas detection requirements.

Region: **United States**

Industry: **Gas Monitor**

Application: **Gas Monitoring System**
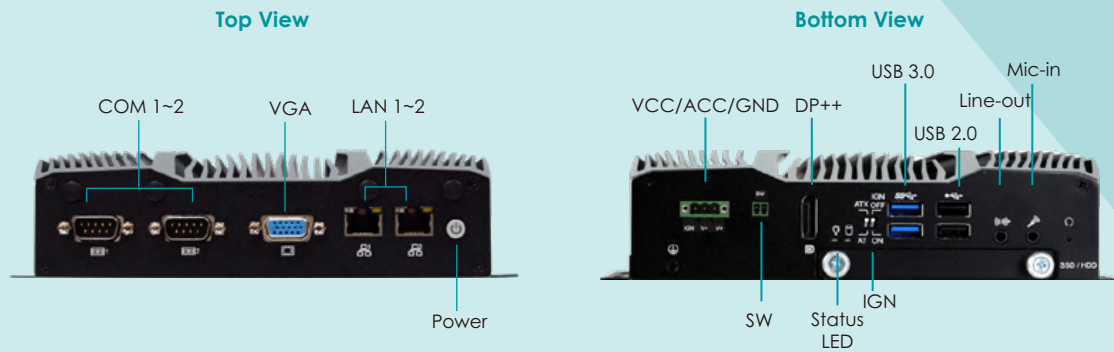
Solution: **KSM156-ALW48**

The gas monitor observes the gas or vapor, and when there is an abnormal situation, such as leakage, an alarm is issued to warn of the dangerous situations, and measures can be taken to prevent personal injury or property damage. From petrochemical & chemical plants, natural gas plants & refineries, offshore platforms & drilling rigs, gas storage & loading facilities, pipelines & compressor stations, solvent monitoring, sewage treatment plants, parking garages, hospital sterilizing rooms, battery rooms, cable vaults, drying ovens, boiler rooms, alternative fuel vehicles, construction on landfills, water & waste treatment, etc., gas monitors are around us everywhere.

The gas monitor is composed of a sensor, a signal transmission amplifier, and a control module. Since the deployment environment is exceptionally diverse, the control module is mainly based on touch computers. It must correspond to different deployment environments, versatile I/O interfaces, panels with various sizes, and different sensing technology (resistive or capacitive) and need to deal with wide-voltage power modules to achieve better

protection. Besides facilitating the setting and maintenance, the front OSD button, externally adjustable power mode, and the SATA, hard disk installation space need to be easily swapped from the outside when needed. The fanless and cableless design ensures that the product's durability is nothing short of the mandatory requirements.

The KSM156-ALW48, which has a highly modular design and combines all the above advantages, has a full-plane IP65-certified dust-proof and waterproof front panel. It can install a 2.5-inch SATA storage device that can be removed from the outside, supports mSATA, and is easy to install on the VESA mount and recessed mounting brackets, versatile I/O interfaces (LAN, USB, COM) sufficient enough to connect all peripheral devices, up to 50,000 hours life of panel backlight, broad voltage input (9-48V), comprehensive temperature operation (0 to 60°C), complete shock and vibration resistance verification, and a 15-year supply period extended to the fourth quarter of 2031. Therefore, DFI's KSM-AL modular touch-control computer has become the gas monitor's operating interface and computing brain.

Top View

COM 1~2　　VGA　　LAN 1~2

Power

Bottom View

VCC/ACC/GND　　DP++

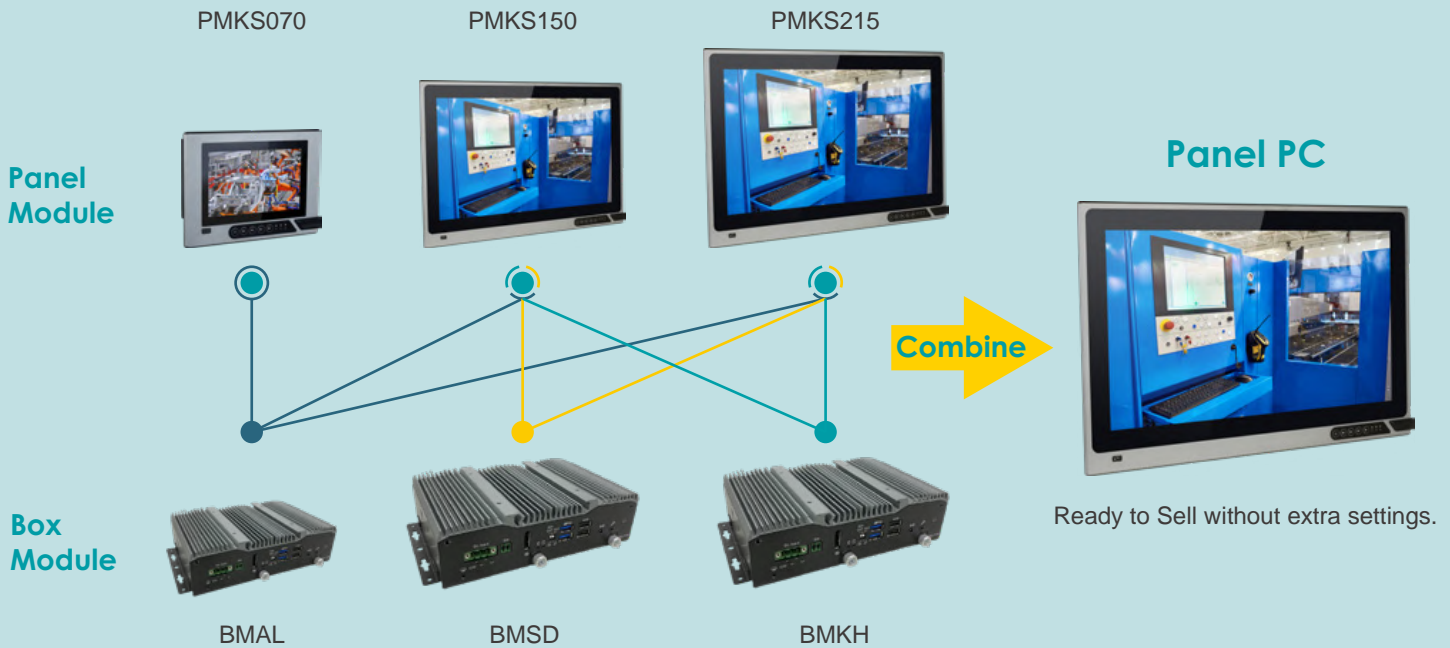USB 3.0　　Mic-in

Line-out

USB 2.0

IGN

SW　　Status LED

DFI has developed an innovative product line called "Adaptive Display Platform Technology," a highly adaptable display platform technology. The modular touch computer design enables the system and touch screen to match various combinations to meet the needs of different users. It only needs to upgrade specific system modules instead of upgrading the entire system, providing a more flexible and cost-effective solution for system integrators. DFI's new series of touch-control computers are equipped with ADP technology and have the advantages of being updated at any time, easy to maintain, and robust design. It is an ideal solution for factory automation, transportation, and mission-critical applications.

DFI's KSM-AL series has an invention patent for a switchable power management module. The module replaces a microcontroller (MCU) with a built-in embedded controller. It is cost-effective and space-saving. It can realize the power ignition (Power Ignition) function and has a seven-stage delay on/off time management function (System On/Off Delay Time) to provide low-voltage power protection so that the operating system has sufficient time to boot and shutdown (OS Protection Time). This ensures the data integrity of the operating system. The series also provides wide-voltage power supply modules, including two options of 9~48V and 24V power boards, which can simultaneously meet the needs of gas monitor deployment in different environments.

In the past, the biggest problem with the modular design was the "blind installation," where the bottom cannot be seen. Not only is it challenging to locate and install, but there is also the fear of damage done to the electronic components of the connector, resulting in defects. If you exchange different personal computer modules with different sizes and installation methods, the above problems will likely occur. Therefore, for the KSM series, DFI has optimized the mold to design a detachable positioning pillar and applied for a patent. The positioning holes designed for different personal computer modules are used to install on the panel module. During assembling, you only need to aim at the positioning holes for easy installation. The height of the positioning post is used to protect the electronic components of the connector. As long as the positioning hole is offset, it cannot be installed and will not hit the electronic components, avoiding damages to the parts and improving the vibration resistance and stability significant for the production environment.
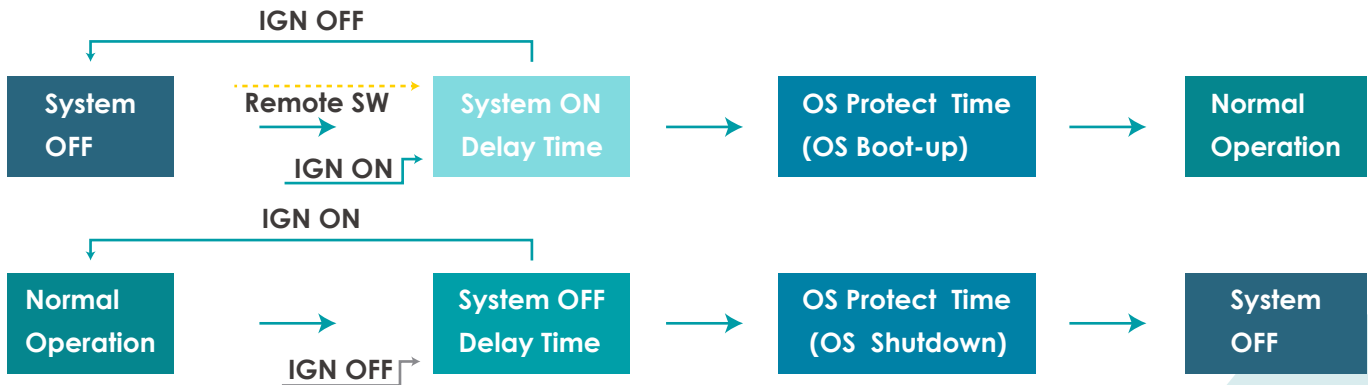
KSM Series - Modular Panel PC with multiple sizes of panels & box module

PMKS070 PMKS150 PMKS215

Panel Module

Panel PC

Combine

Ready to Sell without extra settings.
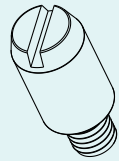
Box Module

BMAL BMSD BMKH

The KSM156-ALW48 supports WiFi, 4G LTE, and a built-in SIM slot. It is more convenient to connect to a remote management system in environments where it is difficult to deploy an Ethernet network. Historical data can be transmitted through the network to ensure the preservation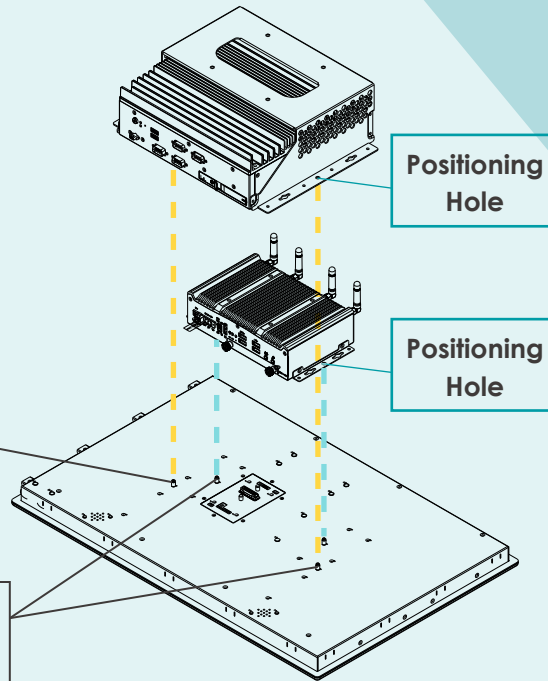 of monitoring data without leakage. Customers believe that unnecessary features increase human and instrument error and increase the cost of repair. It should be a simple design adapted to the user's requirements and backed by solid technology. The performance of KSM156-ALW48 is enough to prove that DFI is the most suitable partner.

Power Ignition (IGN) To Ensure The Integrity Of Data

IGN OFF

| System OFF | Remote SW | System ON Delay Time | OS Protect Time (OS Boot-up) | Normal Operation |

IGN ON

IGN ON

| Normal Operation | | System OFF Delay Time | OS Protect Time (OS Shutdown) | System OFF |

IGN OFF

Removable Positioning Pillar

Positioning Hole

Positioning Hole

Different PC Module individually have specific pillars for corresponding positions

The positioning pillar is taller than the electronic component. It cannot be installed if the positioning is not correct, so as to avoid the collision problem.

Reference Information

DFI KSM-AL Website
https://www.dfi.com/pressroom/landingpage/384

DFI KSM-AL Introduction
https://www.benqbusinesssolution.com/wp-content/uploads/2021/03/DFI-KSM-AL-Series-Adaptive-Display-Platform-Datasheet.pdf

Please click or scan the QR code to see our website if you would like us to contact you.

DFI

Founded in 1981, DFI is a global leading provider of high-performance computing technology across multiple embedded industries. With its innovative design and premium quality management system, DFI's industrial-grade solutions enable customers to optimize their equipment and ensure high reliability, long-term life cycle, and 24/7 durability in a breadth of markets including factory automation, medical, gaming, transportation, smart energy, defense, and intelligent retail.
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