

Dimensions and parameters of intelligent PDU for oil pipeline monitoring

Article Overview

Intelligent PDUs for oil pipeline monitoring combine compact dimensions, environmental resilience, and advanced power management features to enable remote monitoring and control of critical equipment.

Dimensions and Physical Parameters

Modern intelligent PDUs, such as the POWERGuard series, are designed with a thin profile of 56mm depth and 56mm width, allowing flexible installation in standard rack cabinets or remote enclosures (). They are engineered to operate reliably in ambient temperatures up to 60°C, making them suitable for harsh oil and gas field environments (). Flexible mounting options allow deployment in telemechanics nodes, pumping stations, and compressor stations without requiring extensive infrastructure modifications ().

Electrical and Monitoring Capabilities

Intelligent PDUs provide real-time monitoring of voltage (V), current (A), power (kW, kVA, kVAR), energy consumption (kWh), frequency (f), and power factor (). They support single-phase and three-phase configurations, enabling compatibility with diverse pipeline equipment. Relay outputs allow remote switching of connected devices, which is critical for restarting hung equipment or managing power during outages ().

Environmental and Sensor Integration

These PDUs can integrate with environmental monitoring sensors, including temperature, humidity, water detection, smoke, and door sensors. Each cabinet can connect up to four temperature and humidity sensors, providing comprehensive environmental oversight (). This capability is essential for pipeline monitoring, where equipment may be exposed to extreme conditions or remote locations.

Software and Remote Management

Intelligent PDUs are often paired with centralized management software (e.g., SmartPack), enabling remote monitoring, automated power cycling, and predictive maintenance (). This reduces the need for on-site personnel, minimizes downtime, and allows integration with SCADA or IoT-based pipeline monitoring systems (). Watchdog configurations can automatically recover equipment operation in case of failures, enhancing reliability in remote oil and gas facilities ().

Key Advantages for Oil Pipeline Applications

- o Remote control and automation reduce operational costs and downtime.

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- o High measurement accuracy ($\pm 1\%$) ensures reliable monitoring of critical parameters ().
 - o Environmental resilience supports deployment in extreme temperatures and harsh field conditions.
 - o Integration with IoT and SCADA systems allows real-time data collection for predictive maintenance and anomaly detection ().
- In summary, intelligent PDUs for oil pipeline monitoring are compact, robust, and feature-rich devices that provide power distribution, environmental monitoring, and remote management capabilities, making them essential for modern pipeline infrastructure.

Recent technological innovations in pipeline monitoring and leak detection have significantly enhanced the safety and

Connected PDUs (iPDUs) include measurement of consumption and switching of active power and remote alarm with volts,

Offered in many sizes and configurations, our smart PDUs provide the voltage, current, outlet number and type of connections

The increasing need for efficient and real-time monitoring of petroleum pipelines has highlighted the limitations of

Hier sollte eine Beschreibung angezeigt werden, diese Seite lässt dies jedoch nicht zu.

This paper discusses pipeline leakage detection technologies and summarises the state-of-the-art achievements.

With metering and monitoring features, together with the capability for users to set custom thresholds, the MPI allows users to

Intelligent IoT- and UAV-Assisted Architecture for Pipeline Monitoring in OGI Abstract: With the advent of the Internet

The purpose of this study is to present an intelligent IoT-based monitoring system that incorporates intelligent devices

Conclusion The advancements in oil pipeline monitoring systems highlight their essential

Abstract Despite being considered the safest means to transport oil and gas, pipelines are susceptible to degradation.

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Oil pipelines are critical infrastructure for the transportation of petroleum products, and ensuring their safety and

First, the paper highlights the key considerations that influence the monitoring system's design, including pipeline

Discover how IoT solutions revolutionize pipeline monitoring in the oil and gas industry. This detailed case

The Intelligent PDUTM provides network-grade power distribution, remote/local monitoring, and outlet control. An Intelligent PDU

Pipeline monitoring is quite important to keep track of any loss by leakages of hydraulic failures. Internet of things

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