AVISAN

INNOVATION • TECHNOLOGY • TOMORROW

Pishro Gostar Ertebati Caspian

Engineering Company



Connecting Ideas
Building a Smarter Future

SMART SOLUTIONS | ENGINEERING EXCELLENCE | INNOVATION DRIVEN | YOUR TRUST OUR PRIORITY

1. Introduction

Established in 2007, Pishro Gostar Ertebati Caspian Engineering Company (operating under the Avisan brand) is a premier innovator across the electrical sector, specializing in power, telecommunications, control, and electronics. Building upon a proven track record of executing complex industrial projects, we launched a dedicated R&D division to bridge critical industry pgaps by engineering certified, knowledge-based technologies. Designed to directly rival international standards, our solutions empower global partners to seamlessly overcome supply chain bottlenecks and operational complexities- delivering cost-effective, high-performance systems engineered with complete technological self-reliance.

Today, backed by a dynamic team that blends seasoned expertise with youthful energy, Avisan delivers comprehensive executive and consulting services across the power sector. Having registered six proprietary knowledge-based products, we remain committed to continuous innovation, providing ongoing technical support and advanced system upgrades.



2. Field of Activity

2-1- Power Distribution Systems:

- Execution and commissioning of 20 kV medium-voltage distribution lines across industrial parks, alongside the deployment of comprehensive power distribution grids.
- Engineering and implementation of on-grid and off-grid solar photovoltaic systems for commercial and residential buildings, as well as rural electrification projects.
- Turnkey installation of industrial diesel generators and uninterruptible power supply (UPS) systems to ensure reliable emergency backup power.







2. Field of Activity

2-2- IoT-Based Systems:

Pishro Gostar Ertebati Caspian Engineering Company manufactures advanced smart electrical equipment capable of real-time data transmission and remote control over Wi-Fi and cellular (GPRS) networks. Backed by our dedicated cloud server infrastructure, we design and customize end-to-end Industrial IoT (IIoT) platforms tailored to our hardware - providing seamless monitoring and control via Android, iOS, and web applications.



2-3- Telecommunication Systems:

We engineer high-reliability wired and wireless communication infrastructures- spanning structured copper cabling, fiber-optic networks, and microwave radio links for seamless video and data transmission.



Our portfolio includes deploying wireless IP-CCTV surveillance networks, centralized data centers, and multi-layer enterprise LAN/WAN switching architectures for public and private sector organizations

2. Field of Activity

2-4- Consulting and Engineering Design:

Beyond turnkey project execution across the electrical industry, our team provides specialized engineering consultancy and design for electrical protection, security, and building power systems. Additionally, we offer complimentary technical feasibility studies, load calculations, and cost estimations for solar photovoltaic plants, diesel generators, and UPS backup systems.







2. Field of Activity

2-5- Technical Support and Maintenance:

We stand behind every product we manufacture with comprehensive after-sales service and guaranteed spare-parts availability ranging from 2 to 10 years, depending on the equipment class.

In addition to supporting our proprietary solutions, Pishro Gostar Ertebati Caspian Engineering Company has years of experience executing Preventive Maintenance (PM) and overhaul programs for critical electrical infrastructure. Our maintenance workflows utilize standardized inspection checklists, diagnostic test sheets, and custom-engineered maintenance schedules tailored to each asset's operational history



3. Products

3-1- LMD RTU Load Management Device:

As industrial automation and electrical networks grow increasingly complex, protecting and managing diverse assets often requires deploying multiple incompatible monitoring and protection relays-complicating system architecture and maintenance. To streamline these operations using modern Industrial IoT (IIoT) technology, Pishro Gostar Ertebati Caspian Engineering Company developed the LMD RTU Load Management Device. This all-in-one unit interfaces seamlessly with both resistive and inductive loads, accurately measuring critical electrical parameters and transmitting real-time telemetry over cellular (GPRS/APN) networks to empower data-driven load control and protection

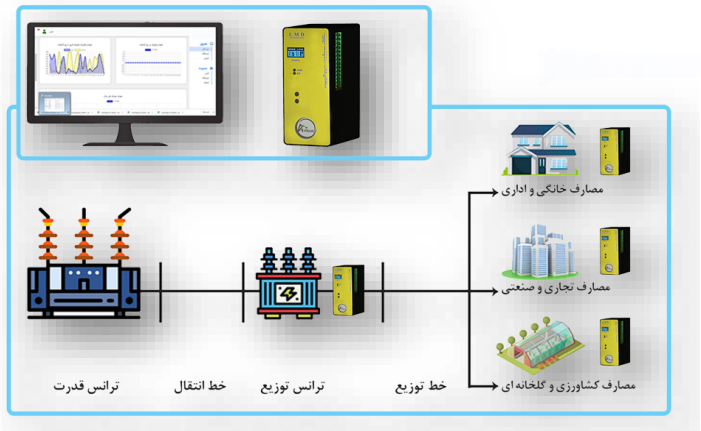


Functional Specifications of the Device:

- Operating temperature range: -15°C to +60°C
- Full SCADA outstation and telemetry operation capability
- Ingress protection rating: IP52 (dust and water resistant)
- Real-time metering and logging of active, reactive, and apparent power, plus grid frequency
- Automated overload detection and protection trip control

Technical Specifications:

- Industrial relay control outputs (configurable 4-channel and 8-channel expansion slots)
- Seamless compatibility with private APN, cellular GPRS, and industrial telemetry networks
- Configurable analog inputs: 0–10 V DC and 4-20 mA current loop
- Support for Double Command (select-before-operate) supervisory control
- End-to-end AES-128 cryptographic data security
- Integrated communication interfaces: RS485, RS232, USB, and Ethernet (LAN)
- Web-based SCADA monitoring software with historical database logging
- Native support for Modbus, DNP3, IEC 60870-5-101, and IEC 60870-5-104 protocols



3. Products

3-2- Industrial Modem:

Reliable data transmission is the backbone of any Industrial IoT (IIoT) architecture. While modern smart devices often feature integrated transceivers, legacy industrial assets and field data loggers require dedicated external modems to bridge the connectivity gap. Our Industrial Modem seamlessly interfaces with field data loggers via the RS232 serial protocol to enable bidirectional telemetry. Engineered with automatic carrier detection, it supports all standard GSM SIM cards with zero manual network configuration required. Beyond primary GPRS data transmission, it also provides fallback SMS communication for critical emergency alerts.

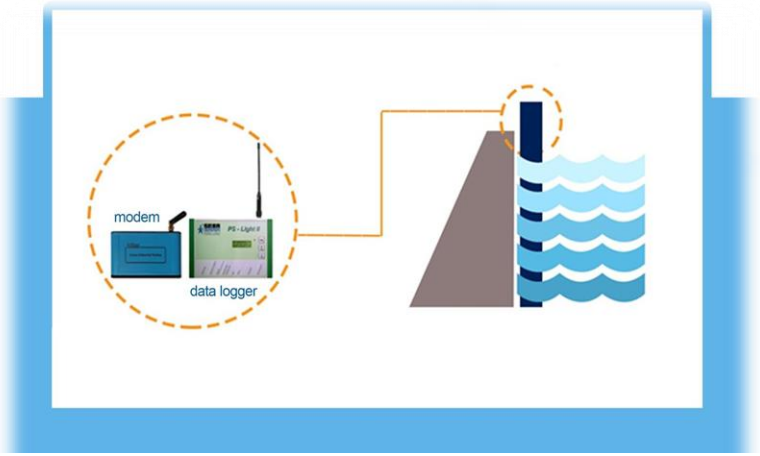


Functional Specifications of the Device:

- Operating temperature range: -20°C to +60°C
- Ingress protection rating: IP54 (dust and splash resistant)
- Supports GSM, GPRS, and private APN cellular networks for secure data transmission
- Direct plug-and-play compatibility with SEBA and Lufft hydrological/meteorological data loggers
- Integrated diagnostic status LED indicators
- Full compatibility with MCI and all standard GSM operator SIM cards

Technical Specifications:

- Ultra-low power consumption: ~0.5 W
- Wide operating voltage range: 12–24 V DC
- User-configurable data transmission intervals
- Industrial RS232 serial communication interface
- Supports high-gain external 7 dBi and 8 dBi GSM/GPRS antennas



3. Products

3-3- Ultrasonic Level Meter:

Engineered for high-precision non-contact fluid level measurement, this device delivers real-time remote monitoring and control via cellular (GPRS/APN) telemetry alongside high-capacity onboard data logging. Designed to calculate flow rates across concrete flumes and open channels, it enables operators to track cumulative discharge volumes and time-series hydraulic parameters with ease.

This system is purpose-built for deployment across open-channel networks and regional water resource management infrastructures.



Functional Specifications:

- Wide operating temperature range: -20°C to +75°C
- Versatile non-contact acoustic sensing compatible with diverse liquid media
- Ingress protection rating: IP54 control unit and IP68 submersible-grade ultrasonic transducer
- Engineered for a 15-year operational service life
- Ideal for early flood-warning stations, hydrological monitoring, and central SCADA rooms
- High measurement accuracy: ±1 mm resolution
- Automated volumetric flow rate and totalized discharge calculation
- Intuitive, user-friendly graphical interface

Technical Specifications:

- Operating supply voltage: 12–24 V DC
- Nominal power consumption: 5 W
- Integrated audible flood alarm buzzer
- 2.4-inch color touchscreen display
- Support for integrated RFID/smart-card access control reader
- Local communication ports: RS485 and USB
- Wireless connectivity: Private APN, GPRS, industrial telemetry, and Bluetooth
- Onboard non-volatile memory capacity: 100,000 timestamped data records



3. Products

3-4- Smart Controller Socket:

Available in single-outlet and multi-outlet configurations, this smart power socket enables seamless remote management and energy monitoring of connected electrical appliances. Controlled via a dedicated mobile and desktop application, the device connects over Wi-Fi or cellular (GPRS) networks—empowering users to monitor consumption, automate schedules, and switch loads from anywhere in the world



Functional Specifications:

- Built-in Infrared (IR) blaster for remote control of air conditioners and IR appliances
- Operating temperature range: -20°C to +50°C
- Ingress protection rating: IP54 (dust and splash resistant)
- High-impact, flame-retardant ABS enclosure
- Cross-platform remote control via Android, iOS, and Windows applications
- Programmable timers and automated operating schedules
- Intelligent standby-power detection with automatic vampire-load shutoff
- Real-time electricity cost calculation based on utility tariff structures
- Smart load-shifting and demand-response scheduling for peak-tariff hours

Technical Specifications:

- Internal power consumption: ~1 W
- Relay mechanical/electrical endurance: >10,000 switching cycles
- Dual wireless connectivity: Wi-Fi and cellular GPRS
- Integrated status LED indicator
- Operating voltage: 220–250 V AC
- Rated current: 10 A
- Maximum power rating: 2200 W
- Nominal line frequency: 50 Hz
- Energy metering accuracy



3- Products

3-5- Avisan Intelligent Edge Controller (AIEC):

As industrial facilities demand faster response times, predictive maintenance, and autonomous local control, relying solely on traditional PLCs or cloud architectures introduces high costs and latency bottlenecks. To bridge this gap, Pishro Gostar Ertebati Caspian Engineering Company developed the Avisan Intelligent Edge Controller (AIEC). This compact, all-in-one programmable controller and industrial gateway combines versatile I/O, a multi-stage automation engine, and embedded Edge AI time-series predictors (Echo State Networks with online RLS learning). Forecasting equipment anomalies in real time without cloud dependency, the AIEC orchestrates field and supervisory assets via dual RS485 Modbus ports, simultaneous LAN/Wi-Fi, bidirectional MQTT telemetry, and an integrated web panel.



Functional Specifications:

- Embedded Edge AI engine with 4 real-time Echo State Network (ESN) and online RLS time-series predictors for local anomaly detection and predictive maintenance
- Autonomous automation engine supporting 13 configurable conditions, 10 programs, boolean logic (AND/OR), cyclic timers, and cascading delays (50 ms to 49.7 days)
- Three concurrent configuration pathways: built-in graphical Web Admin Panel, remote MQTT commands, and direct upstream PLC/SCADA Modbus register access
- Transparent Modbus gateway operating simultaneously as an upstream Modbus Slave and downstream Modbus Master
- Internal Real-Time Clock (RTC) with automatic NTP sync plus coordinate-based Astronomical Clock (sunrise/sunset automation)
- Built-in IP subnet firewall, DJB2 authentication, live SSE console, and Over-The-Air (OTA) firmware updates
- Native HTTP Modbus Web API and dedicated AVISAN OPC UA Gateway software (X.509 security) for plug-and-play Siemens WinCC and SCADA integration

Technical Specifications:

- Digital & proximity inputs: 2 isolated 24 V DC digital inputs, 2 high-frequency PNP inputs, and 2 NPN inputs
- Analog inputs: 2 channels (0–10 V DC, 12-bit ADC) with independent software calibration multipliers (0.5–1.5)
- Relay outputs: 4 relays comprising 2 power-fail state-retaining latching relays and 2 standard NO/NC relays
- Solid-state & analog outputs: 2× 24 V DC and 2× 12 V DC high-side digital outputs, plus 1× 0–15 V DC filtered PWM analog output
- Serial interfaces: Dual independent RS485 ports — Port #1: Modbus RTU Slave (ID 1–247); Port #2: Modbus RTU Master (9600–115200 bps)
- Network & telemetry: Simultaneous Ethernet (LAN) and Wi-Fi with automatic failover routing and bidirectional MQTT telemetry
- Register architecture: Standardized 32-bit IEEE-754 float registers, 1-bit Modbus Coils/Discrete Inputs, and 4 non-volatile Flash Auxiliary Registers

3. Products

3-6- Enterprise IoT Server Platform:

To support our expanding ecosystem of internet-connected hardware and industrial telemetry devices, we engineered a comprehensive, dedicated cloud and on-premise IoT Server platform built on the high-speed MQTT protocol. Continuously upgraded to support our entire IIoT product line, the platform delivers real-time numerical and graphical dashboards, role-based operator command execution, and secure historical data archiving and analytics.



4. Key Projects & Track Record

4-1-Deployment of an intelligent power consumption monitoring and load-management system for the Greater Tehran Electricity Distribution Company—executed as a national pilot project under the supervision of the Ministry of Energy.



4. Key Projects & Track Record

4-2-Modernization, replacement, and commissioning of withdrawable low-voltage (LV) and Motor Control Center (MCC) switchgear panels for the National Iranian Oil Products Distribution Company (NIOPDC).





4. Key Projects & Track Record

4-3-Turnkey execution of industrial telecommunications and power infrastructure projects, including fiber-optic backbone networks for the Industrial Estates Company.







4. Key Projects & Track Record

4-4-Deployment of integrated perimeter security, surveillance, and structural monitoring systems across major national dams.









5. Selected Clients & Partners

- Regional Electric Power Distribution Companies
- National Iranian Oil Products Distribution Company (NIOPDC)
- Regional Water Authorities
- Iran Small Industries and Industrial Parks Organization (ISIPO)
- Major Commercial & State Banks
- Social Security Organization
- ...



6. Key Licenses, Certifications & Honors

- ISO 9001:2015 (Quality Management System Certification)
- ISO/IEC 27001 (Information Security Management System Certification)
- Strategic Center for Cyberspace Production & Information Exchange Security (AFTA License)
- Industrial Establishment & Manufacturing License
- Grade-Certified Engineering Contractor Qualification Certificate
- HSE Contractor Safety Competence Certificate
- Certified Technological & Knowledge-Based Unit License
- High-Council of Informatics (HCI) Corporate Ranking & Qualification Certificate
- Accredited Electromagnetic Compatibility (EMC) Type-Test Approval (Product: RTU LMD)
- Certified Knowledge-Based Product Registration.
- Accredited Metrology & Calibration Certificate (Product: Ultrasonic Level Meter)
- National Patent & Invention Registration Certificate (Product: Smart Controller Socket)
- First-Place Winner, Electric Power Distribution Startup Weekend
- Operating License issued by the Ministry of Industry, Mine and Trade



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