

WORK
READY
FAILURE
ERROR

FCV Control Unit

RESERVE
POWER



POWER
-200V



AMVAJE ABI
ELECTRONICS INDUSTRY

FCV Control Unit



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ELECTRONICS INDUSTRY



Amvaje Abi: A Legacy of Expertise and Commitment to Quality

Amvaje Abi Company stands at the forefront of the industry, boasting over two decades of invaluable experience in designing, manufacturing, and advancing control systems and precision tools. Specializing in various sectors, particularly oil and gas, this knowledge-based company has earned its reputation as a trailblazer in Iran.

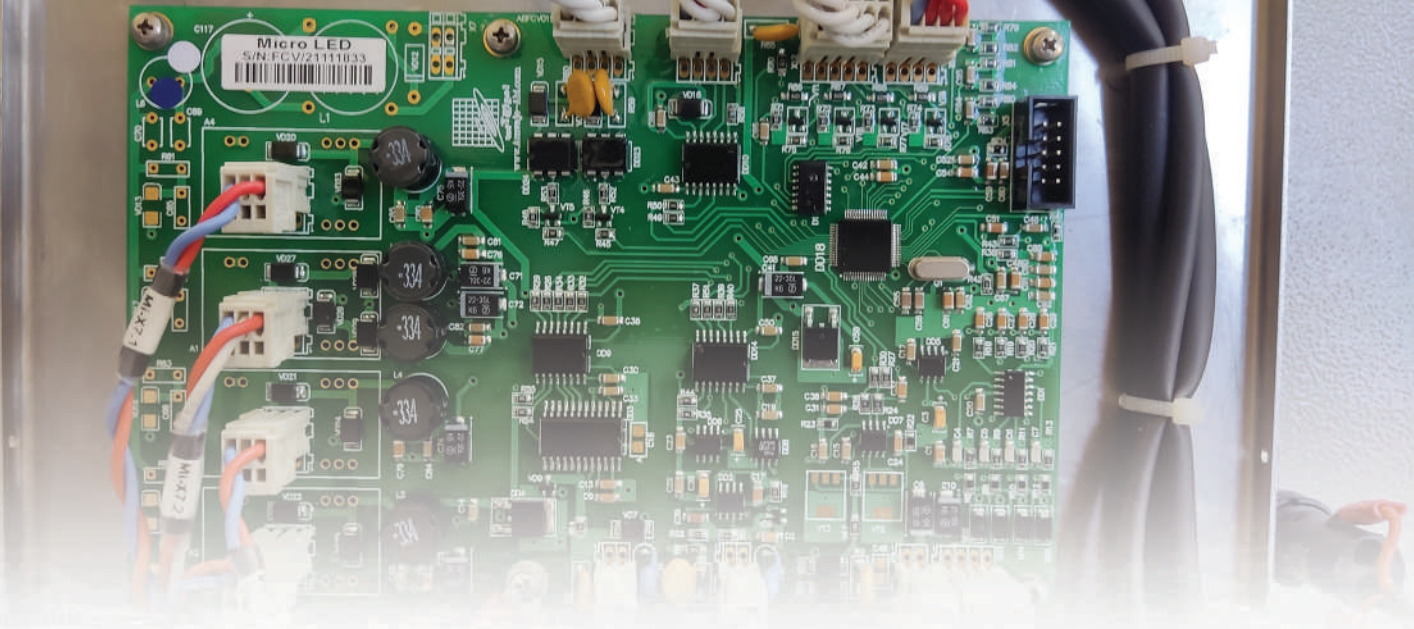
Established in 2002 with a mission to develop electronic systems tailored to the nation's needs, Amvaje Abi has evolved significantly over the years. In 2010, facing economic sanctions and stringent restrictions, the company successfully diversified into the production of control systems and precision tools, consistently delivering top-notch products across industries like oil and gas, mining, and steel.

Amvaje Abi's journey includes remarkable milestones, such as expanding R&D units, stringent quality control measures, and efficient production in the engineering department in Shiraz. Complemented by a management and commercial branch in Tehran, the company operates with a dedicated team of over 50 experts and skilled engineers, all alums of prestigious universities in the country.

In its commitment to international standards, Amvaje Abi has earned membership in the EP and AVL list of the Ministry of Petroleum and the National Petrochemical Company. The company has also secured multiple certifications and approvals from renowned organizations like the Association of Oil and Gas Industry Equipment Manufacturers and the Industrial Automation Companies Association.

With a portfolio boasting over 200 successful products, Amvaje Abi has achieved essential certifications domestically and internationally and has also seen exclusive use in major Iranian refineries and petrochemical plants by getting an exclusive MESC Code. Notable among these are the Pars South Gas Complex, Khangiran, Parsian, Shazand Oil, and numerous other significant petrochemical complexes.

Building on its rich experiences, Amvaje Abi has ventured into international trade, exporting its high-quality products to various countries. Committed to excellence, development, support, and the incorporation of cutting-edge technologies, the company has solidified its position as a leading force in Iran's electronic and industrial control industry and is recognized as a dependable supplier.



FCV Control Unit

The FCV(Fuel Control Valve) Control Unit is a turbine fuel valve controller responsible for regulating the fuel input to the turbine. Given that the speed of gas turbines is controlled through turbine fuel regulation, the process of controlling turbine fuel input with high speed and response time is crucial. This is particularly important in cases where turbine speed control has higher sensitivity, such as gas turbine generators operating in synchronous mode with the grid (e.g., Gas Turbine Generators in scenarios where the generator output is synchronized with the grid). Therefore, the functional sensitivity, response speed, accuracy, and resolution of the FCV significantly impact the proper functioning of the turbine.

Due to the required sensitivity and high speed, FCVs are primarily designed and manufactured using Stepper Motors. In some advanced FCVs, two stepper motors with differential performance are occasionally used to adjust the valve's open or closed position.



Applications

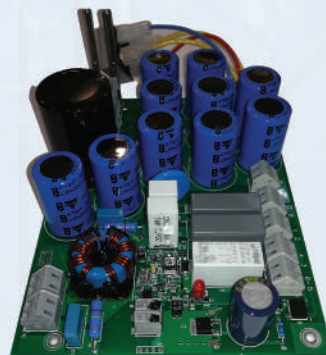
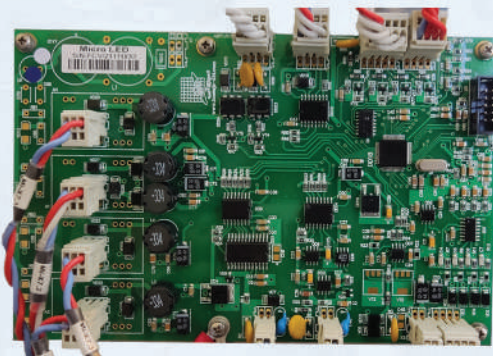
- Control of Turbo-compressor speed
- Control of Turbo-generator speed
- Control of Combined Cycle Gas Turbines (GTCC)
- Control of Burner and Boiler fuel

Technical Specifications

- Power:
 - Mainly: 220V AC $\pm 22V$, F= 50Hz $\pm 0.5Hz$
 - Secondary: 27V DC $\pm 10\%$
- Input Control Signal: 4-20mA
- Output Stepper winding control signal: Minimum 100V
- Position information signal: LVDT feedback
- Metering position pin repositioning time: Maximum 0.3s
- Power Consumption: Maximum 600W
- Working temperature: -40 to 80 °C
- Relative operational humidity: 98 at 35 °C

FCV, an enhanced and improved model of the SUDT-8 system:

- Rectification of PCB issues leading to burning incidents.
- Reduce wiring in the system by employing spacers instead of wiring to connect the Receiver and switching boards.
- The VDR was placed on the PCB instead of external placement.
- Revision of the arrangement of internal boards and reduction of wiring paths.
- Reduction in the number of system boards, including:
 - Integration of Power 220 and Rectifier boards into a single board.
 - Integration of Micro and LED boards into a single board.
- Replacement of more suitable and up-to-date components, including:
 - Substitution of the ATtiny13 microcontroller on DC/DC and Switching boards with an ARM STM32F030 microcontroller, featuring improved quality and programming from scratch.
 - Replacement of the micro on Power 220 and Power 24 Control boards with a comparator circuit while preserving the possibility of using a microcontroller.
 - Substitution of Switching circuits supplying power to the microcontroller board on the Switching board with reliable DC/DC modules.



Company's Services

- Engineering and Manufacturing Services:

- Designing various electronic and control systems.
- Reverse engineering and redesigning electronic cards and control systems.
- Electronic component assembly and mass production of various electronic and control systems.
- Testing and quality control of electronic cards.

- Specialized commercial services:

- Consultation and procurement of industrial control systems.
- Consultation and procurement of various electronic, telecommunication, and precision instruments.
- Consult and procure remote control wireless systems.

- Specialized Repairs:

- Specialized repair of electronic cards and precision instruments for refineries and petrochemical plants.

- Training and Technical Engineering Support

- Updating and Upgrading electronic and control systems

- Control Systems Integration and Commissioning

○ In addition to its diverse and prominent activities, Amvaje Abi Company, with its essential capabilities, is recognized as one of the active companies in the field of designing and integrating control systems and precision instruments. This includes implementation, commissioning, support, and maintenance. The Instrument and Control System Department of Amvaje Abi, with over 15 years of practical experience in industrial automation and precision instruments, has become a key player in providing suitable solutions for major industries, including oil and gas, petrochemicals, steel, etc.

The primary activities and services of the Instrument and Control System Department at Amvaje Abi:

- Consultation and Engineering
- Software design and development
- Conducting FAT processes
- Upgrading and Revamping
- Procurement of project components
- Design of engineering documents and documentation
- Control systems Integration and precision instruments
- Cybersecurity Based On Project Requirements
- SAT
- Commissioning
- Repair and Maintenance
- Training
- Project Management

Customers



Certificates and Standards

Implemented Standards

IEC 61508-7-210	IPC 2222A
BSI BS EN 60079-0	IPC 7351B
BSI BS EN 60079-1	IPC 7711C.7721C
BSI BS EN 60079-20-1	IPC A-600J
BSI BS EN 60079-7	IPC A-610F A1-2016
IEC 61132-2 2017	ISO IEC 80079-34-2018
IEC-60529	ISO9001-2015
IPC 2221B	

Membership Certificate Of Industrial Automation Companies Association



Membership Certificate Of Association of Oil and Gas Industry Equipment Manufacturers



Operation License



Membership in the AVL of the Oil Ministry



Knowledge enterprise Appraisal

گواهی ارزشیابی دانش‌بنیان

گروه ارزشیابی دانش‌بنیان

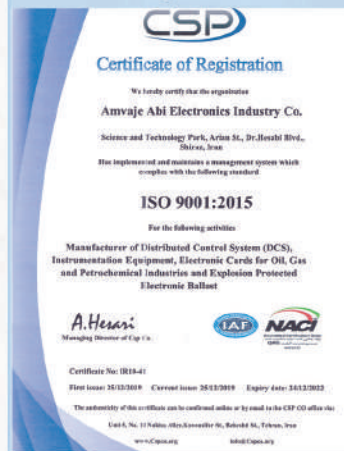
ردیف	نام دانش‌بنیان	نوع دانش‌بنیان	نوع فعالیت
1	شرکت صنعتی اتوماسیون صنعتی گواهی عضویت	تولیدی	تولیدی

این دانش‌بنیان در زمینه تولید تجهیزات الکترونیکی و سیستم‌های کنترل و اتوماسیون صنعتی فعالیت می‌کند. این دانش‌بنیان دارای تیم تخصصی و تجهیزات مدرن است. این دانش‌بنیان دارای گواهی عضویت در انجمن شرکت‌های اتوماسیون صنعتی ایران است. این دانش‌بنیان دارای گواهی عضویت در انجمن تولیدکنندگان تجهیزات الکترونیکی ایران است. این دانش‌بنیان دارای گواهی عضویت در انجمن تولیدکنندگان تجهیزات الکترونیکی ایران است.

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محل ارزشیابی: دانش‌بنیان شرکت صنعتی اتوماسیون صنعتی گواهی عضویت

Quality Control According To ISO9001





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