


- شرکت مهندسی پویا کنترل الکترونیک «دانش بنیان»
- طراحی، ساخت، مهندسی معکوس و تعمیرات پیشرفته
- الکترونیک - مکاترونیک

- **POYA CONTROL ELECTRONIC** "Knowledge base"

- **Design, Manufacturing, reverse engineering, Advanced repairs**
- **Electronics-Mechatronics**

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 @Pce_company

Introduction

Poya Control Electronic Engineering Company was established in 2005 with the aim of providing technical and engineering services in the fields of electronics and mechatronics and with the efforts of a group of experts active in the field of industry and ports of the country and with the cooperation of experienced technical staff. It is proud that with the efforts of managers and experts, it has been able to play a small role in serving the country's industry. Due to the technical and engineering potentials in these fields, and the records of the managers of this company in the field of industrial and port equipment, therefore, specialized activities are focused on these sectors and regarding the provision of specialized technical and engineering services in the field of industrial equipment and equipment. Port Strategy has taken effective steps. And due to the services provided in the field of design, construction and reverse engineering of parts and sub-sets of equipment, in ۲۰۱۸, it has succeeded in receiving knowledge-based approval from the Presidential Scientific and Technological Institution.

The main activities of the company are as follows:

1. Design and manufacturing and reverse engineering in the field of electronics and mechatronics
2. Advanced repairs of electronic and mechatronic systems
3. Updating control systems, electronics
4. Maintenance and repair of industrial equipment

مقدمه

شرکت مهندسی پویا کنترل الکترونیک با هدف ارائه خدمات فنی و مهندسی در زمینه های الکترونیک و مکاترونیک به همت گروهی از کارشناسان فنی فعال در حوزه صنعت و بنادر کشور ، در سال ۱۳۸۴ تاسیس وبا همکاری کادر فنی مجرب، فعالیت خود را آغاز نموده و مفتخر است که با تلاش مدیران و کارشناسان توانسته تاکنون سهم کوچکی در صنعت کشور ایفا نماید.

به جهت پتانسیل های فنی و مهندسی در این حوزه ها ، و سوابق مدیران این شرکت در زمینه تجهیزات صنعتی و بندری، لذا فعالیتهای تخصصی را معطوف این بخش ها نموده و در خصوص ارائه خدمات فنی و مهندسی تخصصی در زمینه تجهیزات صنعتی کشور و همچنین تجهیزات استراتژیک بندری گامهای موثری برداشته است. و به جهت خدمات ارائه شده در حوزه طراحی و ساخت قطعات و زیر مجموعه های تجهیزات ، در سالهای ۹۷ و ۹۹ موفق به دریافت تأییدیه دانش بنیان از نهاد علمی و فن آوری ریاست جمهوری گردیده است.

شاخه های اصلی فعالیت شرکت به شرح ذیل میباشد:

۱. طراحی ، ساخت و مهندسی معکوس در زمینه الکترونیک و مکاترونیک
۲. تعمیرات پیشرفته سیستم های الکترونیک و مکاترونیک
۳. بروز رسانی سیستم های کنترل ، الکترونیک و تجهیزات صنعتی
۴. نگهداری و تعمیرات تجهیزات صنعتی

Records and type of contracts:

سوابق و نوع قراردادها:

1. Design and manufacture of electronic and mechatronic systems used in industrial equipment
 2. Reverse engineering and manufacturing of electronic and mechatronic systems in industry
 3. Implementing correction plans and updating control systems in industrial equipment
 4. 18 years of experience and knowledge in the field of specialized maintenance and repairs of strategic port equipment
 5. Advanced repairs of electronic systems in the industry
 6. Advanced technical and engineering services in the port VTS system
 7. Providing technical and engineering services regarding the maintenance and repair of industrial equipment
۱. طراحی و ساخت سیستم های الکترونیک و مکاترونیک مورد استفاده در تجهیزات صنعتی
 ۲. مهندسی معکوس و ساخت سیستمهای الکترونیک و مکاترونیک در صنعت
 ۳. اجرای طرح های اصلاحی و بروز رسانی سیستم های کنترلی در تجهیزات صنعتی
 ۴. ۱۸ سال تجربه و دانش در زمینه نگهداری و تعمیرات تخصصی تجهیزات صنعتی
 ۵. تعمیرات پیشرفته سیستمهای الکترونیک در صنعت
 ۶. خدمات فنی و مهندسی ساخت و تعمیرات پیشرفته در سیستم VTS بنادر
 ۷. ارائه خدمات فنی و مهندسی در خصوص نگهداری و تعمیرات تجهیزات صنعتی

- **Current contracts of Poya Control Electronic Company:**

- 1-Navigation of VTS marine traffic control system
- 2- disassembly, transportation , assembly, overhaul and commissioning of two pneumatic grain discharge towers-Anzali port
- 3-Contract for specialized repairs and maintenance and knowledge-based services in the field of strategic port equipment - Sahand Company
- 4-Contract for design and construction of motherboard and VTS radar modulator (knowledge-based contract) - Ports and Maritime Organization

- **Installation, maintenance and repair projects performed:**

- 1- Maintenance and repair of electronic and telecommunication systems - Chabahar port
- 2- Maintenance and repair of electronic and telecommunication systems-Amirabad port
- 3- Maintenance and repairs of VTS management - Rajaei port
- 4- disassembly ,assembly and commissioning of a LHM100 device - Bandaramirabad
- 5- disassembly , assembling and commissioning of two NEURO M300 equipments - Bandar Anzali
- 6- Maintenance and repair of electronic systems (Sahand - Persian Gulf Grain - Tidewater Company)
- 7- Launch of VTS radar - Imam Khomeini port
- 8-Installation of Ship propeller electric motor drive -Imam Khomeini port

- **قرارداد های جاری شرکت پویا کنترل الکترونیک:**

۱. راهبری سیستم کنترل ترافیک دریایی **VTS** بندر شهید رجایی
۲. دمونتاز ، حمل و مونتاژ ، تعمیرات اساسی و راه اندازی دو دستگاه برج تخلیه پنوماتیکی غلات-بندر انزلی
۳. قرارداد تعمیرات و نگهداری تخصصی و خدمات دانش بنیان در زمینه تجهیزات استراتژیک بندری- شرکت سهند
۴. قرارداد طراحی و ساخت مادربرد و مدولاتور رادار **VTS** (قرارداد دانش بنیان)-سازمان بنادر و دریانوردی

- **پروژه های نصب ، نگهداری و تعمیرات انجام شده :**

۱. نگهداری و تعمیرات سیستمهای الکترونیکی و مخابراتی - بندر چابهار
۲. نگهداری و تعمیرات سیستمهای الکترونیکی و مخابراتی -بندر امیرآباد
۳. نگهداری و تعمیرات راهبری **VTS**- بندر رجایی
۴. دمونتاز ، مونتاژ و راه اندازی یک دستگاه **LHM100** - بندرامیرآباد
۵. دمونتاز ، مونتاژ و راه اندازی دو دستگاه تجهیز **NEURO M300** - بندر انزلی
۶. نگهداری و تعمیرات سیستمهای الکترونیکی - (شرکت سهند-شرکت غلات خلیج فارس-شرکت تایدواتر)
۷. راه اندازی رادار **VTS**-بندر امام خمینی
۸. نصب و راه اندازی درایو موتور الکتریکی بوتراستر شناور-بندر امام خمینی

• پروژه های طراحی ، ساخت و مهندسی معکوس انجام شده در بخش تجهیزات صنعتی:

۱. مهندسی معکوس و ساخت زاویه سنج و پوزیشنرهای مولتی ترن تجهیزات صنعتی
۲. مهندسی معکوس و ساخت فاز اول ماژول های I/O تجهیزات صنعتی
۳. مهندسی معکوس و ساخت فاز اول دسته کنترل های **Multi-axis**
۴. مهندسی معکوس و ساخت فاز یک کیبردهای صنعتی تجهیزات بندری
۵. طراحی، ساخت مبدل فرکانس و مهندسی معکوس کنترلر دیزل
۶. طراحی و ساخت زاویه سنج های ثقلی تجهیزات صنعتی
۷. طراحی و ساخت کارت های کنترلر ورودی و خروجی آنالوگ و دیجیتال تجهیزات صنعتی
۸. طراحی و ساخت سیستم حفاظت باربرداری
۹. طراحی و ساخت سیستم سرویس مرکزی
۱۰. طراحی و نصب و اجرای سیستم حفاظت سه گانه بوم تجهیزات برج تخلیه غلات.
۱۱. طراحی و اجرای سیستم حفاظت لوله های عمودی در برابر سقوط ناشی از کشش و بریدگی وایرها
۲۱. طراحی و ساخت سنسورهای آنالوگ اندازه گیری سطح مخازن سوخت و هیدرولیک تجهیزات
۳۱. طراحی و ساخت کنترلرهای پروپشنال سیستمهای هیدرولیک
۴۱. مهندسی معکوس و ساخت مادربرد رادار **VTS**
۵۱. مهندسی معکوس و ساخت مدولاتور رادار **VTS**

Design, manufacturing and reverse engineering projects of industrial equipment:

- 1. Reverse engineering and manufacturing of multi-turn Angle sensor**
- 2. Reverse engineering and manufacturing of the I / O modules of industrial equipment**
- 3. Reverse engineering and manufacturing of the can bus Multi-axis Controller**
- 4. Reverse engineering and manufacturing of can bus industrial keyboards**
- 5. Design, manufacturing of frequency converter and reverse engineering of diesel engine controller**
- 6. Design and manufacturing of gravity angle sensor for industrial equipment**
- 7. Design and manufacturing of analog and digital input and output controller**
- 8. Design and manufacturing of load moment protection system**
- 9. Design and manufacturing of central Grace service system**
- 10. Design, installation and manufacturing of triple protection system for grain discharge tower equipment.**
- 11. Design and manufacturing of vertical pipe protection system against falling due to tension and cut of wires**
- 12. Design and manufacturing of analog sensors for measuring the level of fuel tanks and hydraulic equipment**
- 13. Design and manufacturing of proportional controllers for hydraulic systems**
- 14. Reverse engineering and manufacturing of VTS radar motherboard**
- 15. Reverse engineering and manufacturing of VTS radar modulator**

Designed and manufacture Multi Turn Angle Sensor Model 70A-24-01

- These parts are precise tools for measuring angles up to 70 turn(25.200 degree) in equipment and due to many used and necessity of the same parameters, it is important in terms of angular precision, so the company designed and manufactured these parts as needed

Specifications:

- 70 turn angle sensor(25.200°)
- Output:4-20mA
- Power supply:24vdc \pm 20%
- IP66(EN60529)
- temp drift:0.03% / 10°c
- Temp ambient:-40 to +75°c
- Linearity error: \pm 0.1%
- Sensitivity:0.22857 mA/revolution
- Measurement accuracy: \pm 10° based on 25.200°
- Repeatability: better than 1°
- Lifetime:typical 100 million revolution
- Casing:al anodized
- shaft:stainless steel
- Shaft bearings:rolling bearings
- Weight:1200g
- Electrical connection:CA3102E 14S-7P-B bayonet
- Free wheel revolution
- Dimensions: Φ 88,L105 mm
- Model:70A-24-01

Applications:

- Multi turn angle measurement
- Gearbox angle measurement
- Wheel set angle measurement
- Absolute Measurement

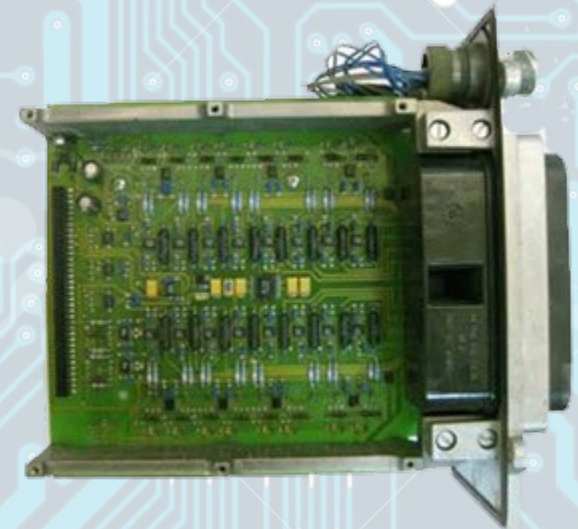
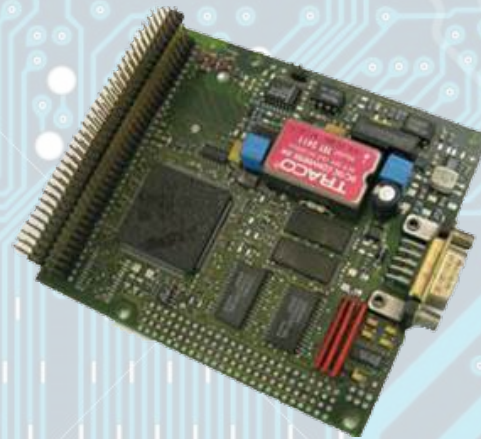


Design and manufacture I / O modules of equipment

- I/O modules are among the most important control components in port equipment. Due to the number and variety of usages and foreign exchange costs as well as the lack of access to sources of supply, so with all the technical feasibility and feasibility studies, all stages of design and manufacture of these modules have been completed internally.

Specifications:

- CANBUS CONECTION
- DIGITAL INPUT MODULE
- DIGITAL OUTPUT MODULE
- ANALOGUE INPUT MODULE
- ANALOGUE OUTPUT MODULE
- COUNTER MODULE
- POWER 9-36VDC
- TEMP -40,+85°C
- BAYONET CONECTOR
- IP 67



Applications:

- LHM100
- LHM150
- LHM250
- LHM320
- LHM400
- LHM500

Design and manufacture of joystick controller for equipment

- Operator controllers are one of the most applicable parts of equipment operations and have a high depreciation in mechanical and electromechanical parts as well as inadequate resources and currency costs, so the company is planning to reform. The complete design of these parts has taken action.

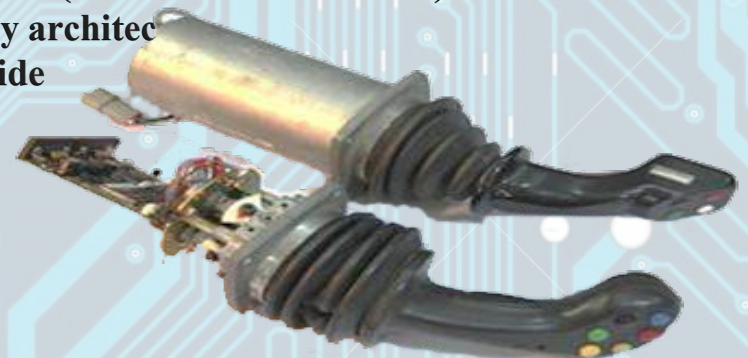


Specifications:

- multi-axis controller
- CAN-Bus interface
- Power supply:18-36vdc
- IP54
- Temp ambient:-40 to +85°C
- Sensitivity:1/1000 (each direction)
- Measurement range:1000 (each direction)
- Ordering feature with a variety of voltage and current outputs
- Lifetime:typical 10 million cycle
- Electrical Connection: D-SUB 9,IP 65 (male) CAN in +,D-SUB 9,IP 65 (female) CAN out
- software zero contact
- 9 digital switch(Installed on the handle)
- Redundancy architect
- Left/right side

Applications:

- Multi-axis controller
- Electro-hydraulic applications
- Used in systems with high reliability
- UAV control
- Crane applications



Design and manufacture of tachometer in equipment

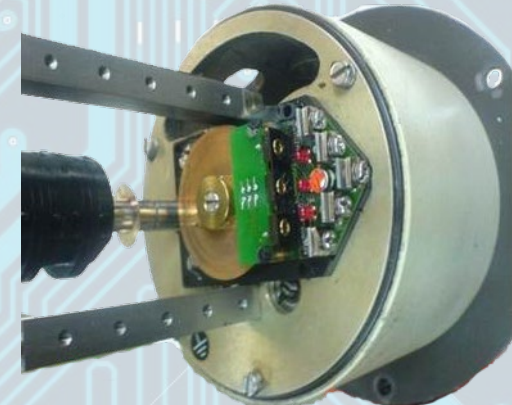
- **Tachometers are one of the most important tool components in systems to measure displacement and velocity. It is also stimulated by a gearbox that reduces the distance by a certain proportion and switches that are placed on the shaft to limit the upper and lower limit of the operator.**

Specifications:

- **Power supply:18-36vdc**
- **Temp ambient:-40 to +85°C**
- **Sensitivity:1/1600 (each turn)**
- **gearbox:1/350**
- **Outputs: pulse a ,b (1600 pulse per 1turn),c(1 pulse per 1turn , 4 cam switch**
- **Electrical Connection: terminal**

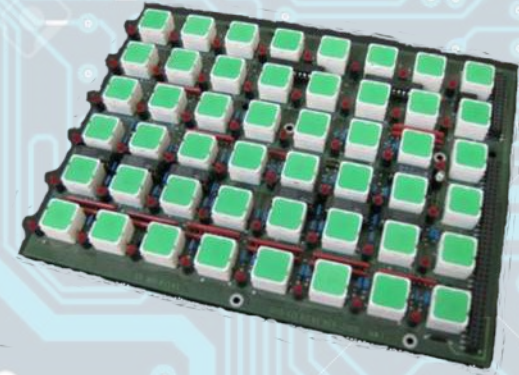
Applications:

- | | |
|---|-----------------------------|
| • Wire winch Crane displacement | • Up/down limitation |
| • Speed meter of rotating machines | • Crane applications |



Design and manufacture of industrial keyboards

- Industrial keyboards are an important part of equipment operation. That They are used as one of the ports of data entry to equip. And because of the connection Direct the operator, they are important.



Specifications:

- Power supply: 18-36vdc
- Temp ambient: -40 to +85°C
- Outputs : canbus , digital out
- Electrical Connection: D9
- IP 65
- 48 KEY
- EMG SWITCH

Applications:

- INDUSTRIAL EQUIPMENT
- Crane applications



Design and manufacture of electronic controller of diesel engine (ECU)

- **ECUs are an important part of diesel engine control systems. Due to their special importance in the equipment and their importance for the complete dependence of the equipment on the operation of these units, so in addition to their 100% hardware and software repairs, the company has also designed and manufactured them.**

Specifications:

- **Power supply:18-36vdc**
- **ambient temp:-40 to +85°C**
- **Outputs:canbus**

Applications:

- **OM444LA**



Design and manufacture of boom angle sensor

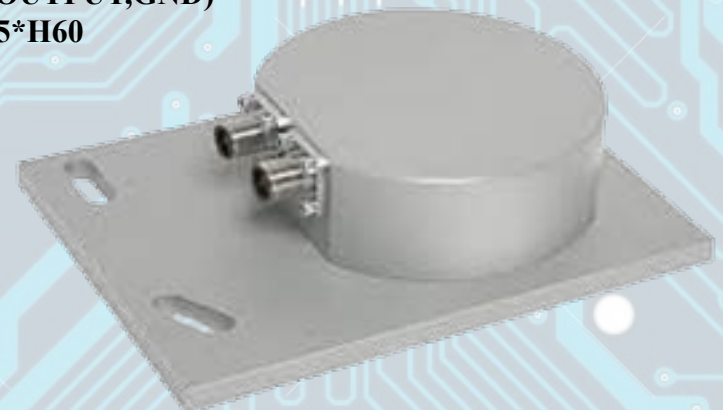
- These components are precision instruments for measuring angles in equipment and are of great importance in terms of operation and measurement accuracy. Therefore, with the investigation of these components, steps are taken to design and manufacture these components and sensors. These sensors are available in two types of gravity and MEMS.

Specifications:

- SINGLE AXIS
- MEASURING RANGE:0-90°
- RESOLUTION:0.01°
- Output:4-20mA
- WIDE RANGE INPUT:9-36VDC
- IP67
- ZERO TEMP COEFFICIENT: $\pm 0.006^{\circ}/^{\circ}\text{C}$
- WIDE TEMP WORKING:-40 to +85°C
- HIGH ANTI-VIBRATION:>3500G
- RESPONS TIME & FREQ:0.05 S ,20HZ
- SENSITIVITY: 0.1778 mA/°
- ACCURACY: $\pm 0.3^{\circ}$
- ABSOLUTE ACCURACY:0.1°
- LONG TERM STABILITY:0.05
- MTBF:5000 HOURS/TIME
- INSULATION RESISTANCE:..100M
- SINGLE/DOUAL OUTPUT
- Casing:aluminium
- Electrical connection:CA3102E 14S-7P-B bayonet(3PIN POWER,OUTPUT,GND)
- Dimentions:L235*W155*H60
- Model:ME90A-24-01

Applications:

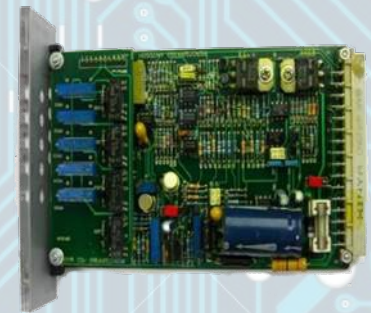
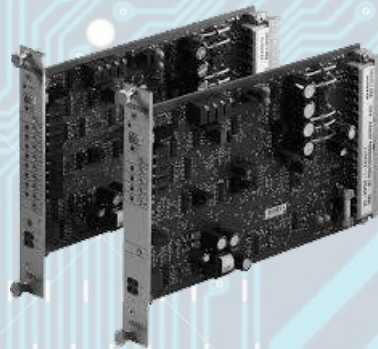
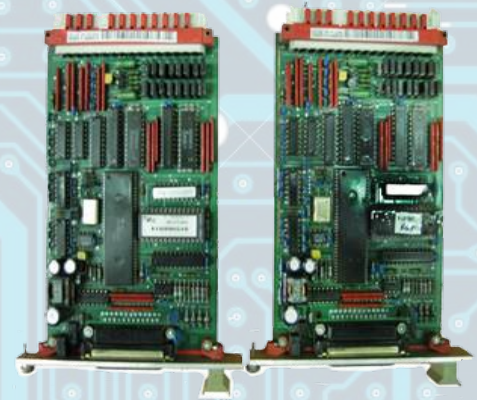
- cranes
- Construction machines



Design and manufacture of analog and digital control cards

One of the services offered by this company can be design and manufacture of various types of control cards by analog processing.

- 1. Design and manufacture of voltage protection card in control panels**
- 2. Design and manufacture of hardware of analog and digital control cards**
- 3. Designing and manufacturing airlock protection card**
- 4. Design and manufacture of joystick tester card**
- 5. Designing and manufacturing of grating control card**
- 6. Design and manufacture of CANBUS converters**



Design and manufacture of load protection systems in loading equipment

- This system is designed to protect the load of lattice and telescopic cranes against adverse loading conditions in terms of boom angle, load, radius, etc. The corresponding interrupt commands are issued and the required alarms are activated.

Specifications:

- BOOM ANGLE & LENGTH MEASUREMENT
- LOAD SENSOR
- 8" LED DISPLY
- TOP LIMIT SWITCH
- POWER 24VDC OR 220VAC
- DIGITAL OUTPUTS
- Digital inputs
- Analogue inputs
- SENSOR CALIBRATION
- IP 65
- Lattice boom & telescopic boom
- Ambient temp 55°C



Design, installation and implementation of triple boom protection system for grain drainage equipment

- Due to the importance of the equipment (grain drainage tower) in the discharge operations of the grain carrier ship and in the event of accidents and damage caused by the collapse of the boom and the vertical and horizontal telescopic sections of the equipment, the company therefore has to protect the triple sections. Boom of this equipment designed precision protection system against unwanted operations due to technical defects (such as failure to disconnect power contactors, etc.) and human fault lines. And by designing and supplying the interface equipment needed to execute the design as well as build the Interface converter needed, on four equipment sets The drainage tower has been installed and the system performs very well.

Specifications:

- BOOM , VERT & HORIZ PIPE UNWANTED OPERATION PROTECTION
- MINI PLC CONTROLLER
- JOYSTIC FEEDBACK
- OUTPUT STAGE FEEDBACK & CONTROL
- POWER 24VDC OR 220VAC
- 3 DIGITAL OUTPUTS
- MAIN BREAKER CONROL
- IP 65



Design and Implementation of Vertical Pipe Protection System against Crash and Traction

- This system is designed to protect equipment (grain drainage tower) against vertical pipe collapse caused by wiring cuts. According to the measurement of wiring tension, a shutdown function will be issued if the controller exceeds the desired optimum traction. Alarms are also activated

Specifications:

- VERT PIPE TENSION PROTECTION
- TENSION CONTROLLER & DISPLY
- TENSION METER
- SIGNAL CONVERTER
- POWER 24VDC OR 220VAC
- 3 DIGITAL OUTPUTS
- IP 65



Design and manufacture of analog sensors for measuring the level of fuel and hydraulic tanks

- In industrial equipment, floating sensors with varying lengths are used to measure the level and volume of fluids such as fuel, water, and oils. These sensors have good accuracy, performance and longevity

Specifications:

- **POWER SUPPLY: 24VDC OR CUSTOMERS REQUEST**
- **RESOLUTION: 20mm**
- **OUTPUT: 4-20mA OR CUSTOMERS REQUEST**
- **LENGTH: CUSTOMERS REQUEST (MAX 200CM)**
- **STAINLESS STEEL**
- **MAX OPERATING TEMP: 80°C**
- **IP 65**

Applications:

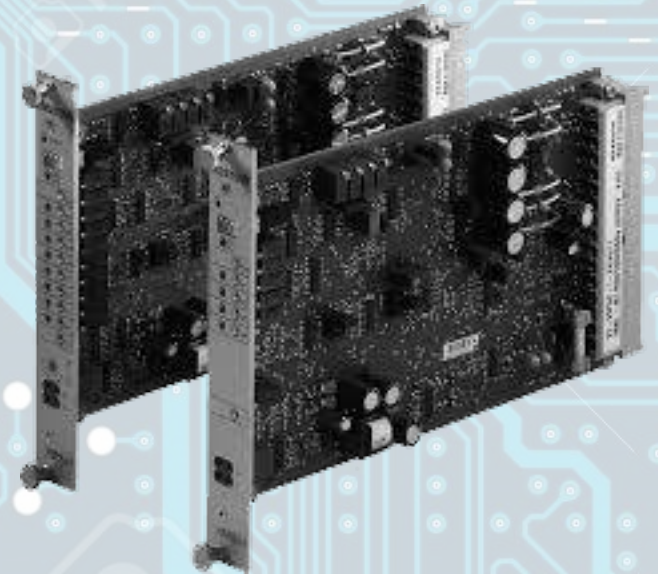
- **fuel level**
- **Hydraulic level**
- **Water level**
- **Oil level**



design and manufacture of hydraulic proportional amplifire

Hydraulic proportional amplifire model VT-500-02

- for valve type 4WRE 6 ..-1X
- for valve type 4WRE 10 ..-1X
- Customizable for All types of proportional hydraulic valves



Specifications:

- Suitable for controlling direct operated proportional directional valves with electrical position feedback (type 4WRE, series 1X)
- Differential input
- Enable input with LED lamp
- "Readiness for operation" is signaled by LED lamp
- Step function generator and ramp generator
- Five ramp times can be set with the help of potentiometers
- Four command values that can be adjusted by means of potentiometers
- call-ups are signaled by LEDs
- Controller for valve spool position
- Two clocked current output stages
- Oscillator and demodulator for inductive position measurement
- with cable break detection
- Polarity reversal protection for voltage supply
- power 24 VDC + 40 % – 5 %, >50VA
- Output stage 2.2 A +/-20%, 2.4V-16.8V
- operating temperature range 0 to 50 °C
- Weight 0.15 kg

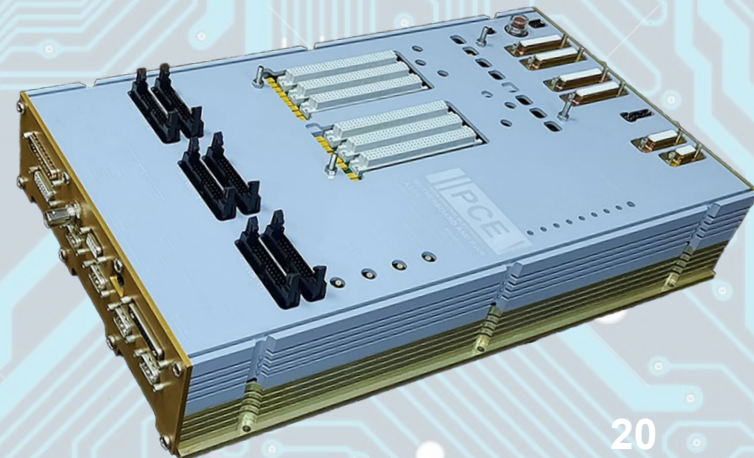
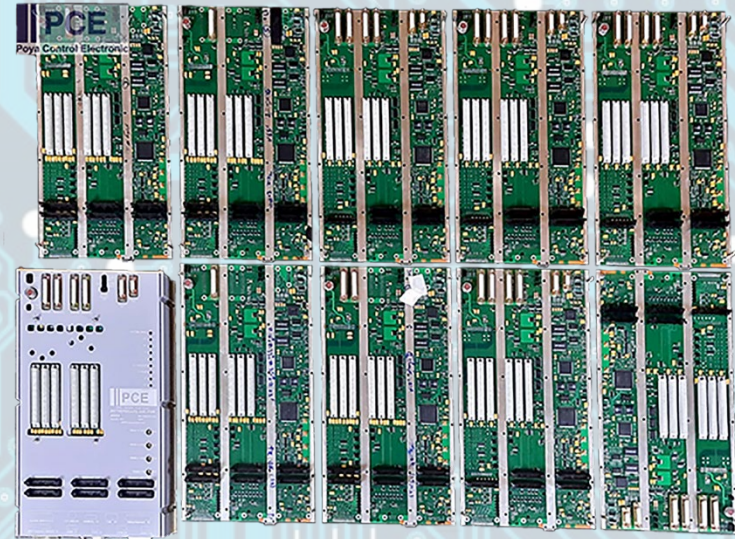
design and manufacture of VTS radar motherboards & Power Assembly

The motherboard is an important component of the radar and acts as a central part. This unit is responsible for controlling various parts of the radar, including the modulator, controller card, RSD, RECEIVER and motor scanner. This unit has two parts, POWER and CONTROL and uses the architecture of a powerful microcontroller system and FPGA .

- Provide DC power to all other units
- System timing (triggers)
- Interface for other units (receiver, RSD etc.)
- Status requests from other units
- Safety loop control
- Antenna correction
- Control of the CAN-bus

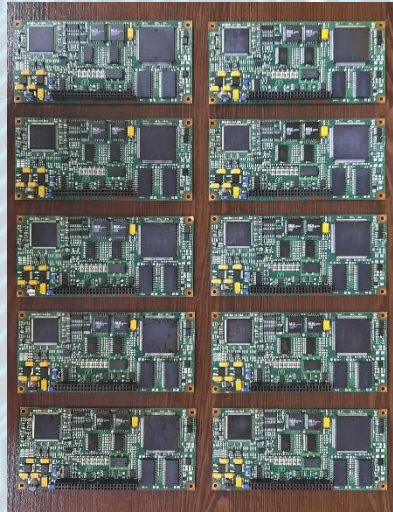
Specifications:

- | | |
|--|--|
| • X1 AUX/WG Switch connection & control | • X17 Video A in connection & control |
| • X2 Ext. Trigger connection & control | • X18 Video A out connection & control |
| • X3 Azimuth X22 Blower, crate | • X19 Video B out connection & control |
| • X4 LAN connection & control | • X20 Video B out connection & control |
| • X5 Video/Trigger connection & control | • X22 Blower, crate connection & control |
| • X7 COM 0 connection & control | • X23 LED |
| • X8 COM 1 connection & control | • X24 Receiver A connection & control |
| • X9 COM 2 connection & control | • X25 Modulator A connection & control |
| • X10 COM 3 connection & control | • X26 Receiver B connection & control |
| • X11 RSD POL/CAN connection & control | • X27 Modulator B connection & control |
| • X12 RSD Power connection & control | • X28 Safety Switch connection & control |
| • X13 RSD COM connection & control | • X29 Blower 2 mid. connection & control |
| • X14 RSD Encoder/COM 3 connection & control | • X30 Blower 1 mid. connection & control |
| • X15 RSD Video connection & control | • X31 MD STAT connection & control |
| • X16 RSD Video/Trigger | • X32 MD COM connection & control |



design and manufacture of VTS radar Modulator(V4)

- **Modulators have been one of the most important components in radars And its main function is to generate high voltage pulses for delivery to the magnetron and propagation of waves through it .**
- **Drive Filament for the magnetron**
- **Pulse shaping**
- **9KV High voltage**
- **25KW PULSE/100W CW**
- **POWER BOARD**
- **HV BOARD**
- **CONTROL BOARD**
- **CASE**
- **Expansion rubber tank**
- **Cooling and insulation with OIL & FANS**



Specifications:

- **Generate a voltage of more than 9 kV**
- **Resistant to weather conditions**
- **Cool with OIL & FANS**
- **Impermeable to dust in the HV section**
- **Pulse frequency:1,2,3,4 KHZ**
- **SHORT/MEDIUM/LONG/VERY LONG PULSE**

