



SERVICES PORTFOLIO

- Metrological management and auditing of onshore and offshore measurement systems
- Technical customer service and authorized warranty of our products
- Preventive and corrective customer service
- Commissioning, installation, configuration of instruments and liquid and gas measurement systems
- Complete solutions for motorized valves net automation (STVM)
- Non-intrusive gas and liquid flow check
- Engineering and assembling of liquid and gas flow measurement systems
- Certified calibrations (RBC – Brazilian Calibration Network) in dimensional, flow, pressure, temperature and specific weight
- Measurement stations calibration directly in the field using the LABMOV (Mobile flow application testing) in conformity with ANP/CGCRE Resolution
- Training on the use of our products and services
- Fault Management Software for Measurement and Generation Systems and XML sending



ACCREDITED LABORATORY



Laboratory located in the city of Rio de Janeiro accredited by CGCRE (Coordenação Geral de Acreditação do INMETRO) NBR ISSO/IEC 17025:2017 to calibrations of dimensional greatness, flow, pressure, temperature and specific mass, covering Labmov, customer installations and permanent installations (see scope).

Laboratories of specific mass, liquids and gas flow, equipped for calibration and volumetric, and weight measurement repair.

Laboratory of pressure, temperature and dimensional for calibration and system inspection and measurement instruments.

Calibration compact system for flow measures in process conditions in which they perform in conformity with ANP/CGCRE rule.

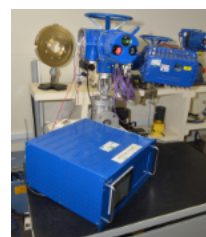


Hirsa has mobile calibration units for flow meters (tax appropriation and transfer of custody), LABMOV, which operate in the field, in the maintenance of equipment to ensure the compliance of flow measurement systems with the joint ANP / Inmetro ordinance, without interruption of operation.

TECHNICAL ASSISTANCE AND GUARANTEE

Authorized service and warranty on all Hirsa representative product lines

- Skilled labor
- Authorized by the manufacturer
- Original parts and pieces



REPRESENTATIONS

Hirsa Sistemas de Automação e Controle

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 Rio de Janeiro – RJ – ZIP code: 21931-010
 Phone: 55 21 2467-9200



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HIRSA METROLOGICAL MANAGEMENT SYSTEM

- Computerized and modular SGMH (HIRSA Metrological Management System)
- Designed to meet technical requirements; contractual, regulatory and legal requirements in accordance with NBR ISO / IEC. 10,012 and 17025
- HIRSA customer portal access availability, customizable

THE FOUR PILLARS OF THE SGM

Document management:

- Organization, updating and availability of technical documentation

Quality management:

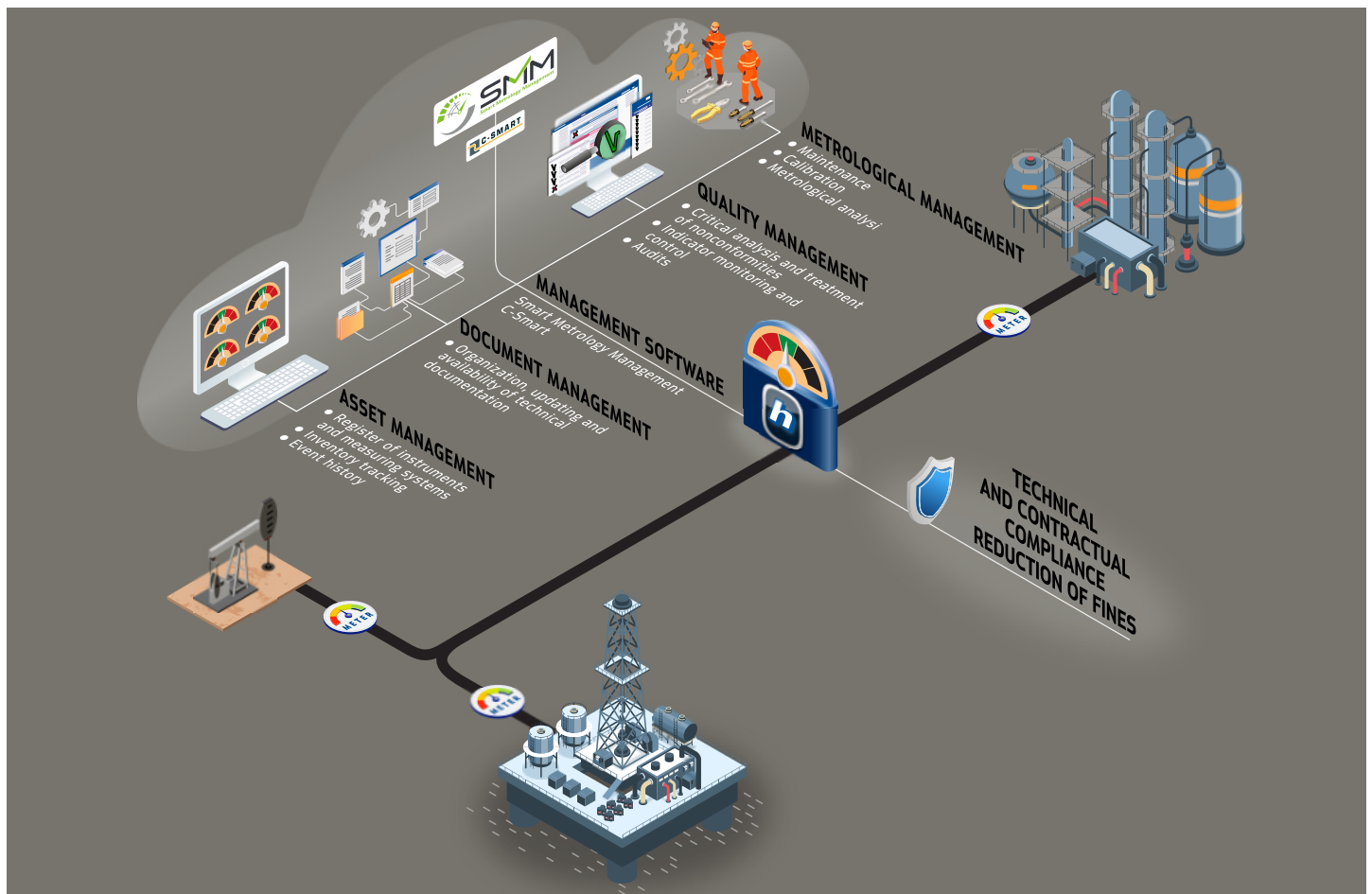
- Critical analysis and treatment of non conformities
- Indicator monitoring and control
- Audits
- Customer satisfaction
- Supplier evaluation and qualification

Metrological Management:

- Maintenance
- Calibration
- Metrological analysis

Asset Management:

- Register of instruments and measuring systems
- Inventory tracking
- Event history



SGMH - DELIVERIES X RESULTS

DELIVERIES

- Skilled labor
- Planning and control of maintenance, calibrations and inspections
- Technical and legal compliance of measurement
- Full support for audits / government surveillance / inspections
- Customizable reports and dashboards

RESULTS

- Metrological reliability
- Operational Risk Reduction
- Continuous improvement of measurement processes
- Increased availability of metering assets
- Avoid fines
- Reduction of operating costs and losses in measurement

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SPECIALIZED SERVICES NUCLEAR AREA

Basic Engineering for component, equipment and systems (including multidisciplinary) projects for the nuclear industry.

- Modifications of the original design during construction, commissioning and operation;
- Conceptual, preliminary and detailed projects of nuclear systems (basic and executive projects);
- Establishment of work processes for basic and related engineering activities;
- Development of manufacturing and assembly process;
- Maintenance of input data and basic design engineering (Design Base);
- Independent verification of the engineering output of other designers (project supervision);
- Conducting technical reviews and regulatory compliance;
- Code compliance, pressure boundary;
- Audit, review and improvement of programs with emphasis on processes related to basic engineering in the nuclear sector.



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VOLUMETRIC FLOW METERS

Technologies to ensure better performance under the most difficult process conditions

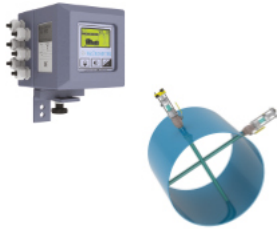
VORTEX



FOR GASES & STEAM

- » Multivariable, loop power, reel models from 2.0 to 8.0 in. and insertion.
- » Retractable probe for lines up to 72 in.

INSERT MAGNETIC



MULTIPOINT

- » Hot tapping insert (retractable probe) for lines from 6 to 96 inches, IP 68 (submersible) electronics, for water and reuse water, effluent and bidirectional water.

POSITIVE DISPLACEMENT



HELICAL ROTORS

- » Self-lubricating, from 1/4 to 20 inches, Application on light hydrocarbons, crude oil and fuel, viscosities up to 20,000 CST.



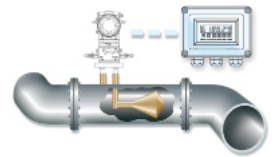
GAS TURBINES



IGTM MODEL

- » Sizes from 2.0 (DN50) up to 16 inches (DN400), high accuracy from +/- 0.5%, 20: 1 rangeability, with built-in lubrication device, and flow conditioner, local totalization and pulse output for checker.

VCONE



DEPRESSION ELEMENT

- » For liquids, gases, steam, lines from 1/2 to 80 or more inches, does not require straight run, less pressure drop from intrusive meters, spool made of various materials, qualified for pressures up to 10000 PSI, agreement ISO 5167-5.

GAS ULTRASONICS



ULTRASONIC GAS FLOW METER

- For custody and tax transfer
- From 3 to 42 in
- 8 beams (4x4)
- AGA 9; OIML R137 class 0.5; ISO 170



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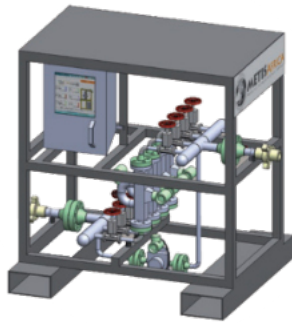


VOLUMETRIC FLOW METERS

Technologies to ensure better performance under the most difficult process conditions

METIS AFRICA: MULTIPHASIC METERING SYSTEM - SKDM

- SKIDM developed by METIS Africa, is a multiphase flow measurement system designed to measure fluids from oil producing wells.
- In these drillings we have water, oil and gas. Today, it is difficult to measure these 3 components at the same time without dissociating them.
- SKIDM is the only system capable of measuring and calculating water, oil and gas flows instantly, without phase separation and without radioactive source.



METER ENGINEERS: SMALL-VOLUME METER PROVER



- Flow meter calibrations (fiscal, appropriation and custody transfer);
- Flow meter calibrations (fiscal, appropriation and custody transfer);
- Use in the field, in process conditions with real-time measurement and without interrupting the operation;
- Suitable for compliance of flow measurement systems with the ANP/CGCRE Joint Resolution;
- Software package.

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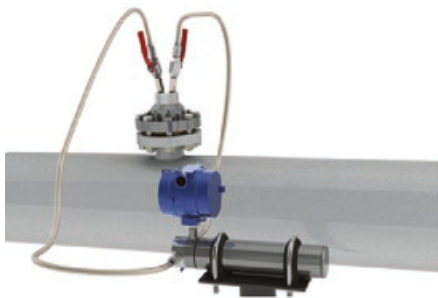
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DETECTION, SAMPLING & ANALYSIS

Technologies to ensure better performance under the most difficult process conditions

AFT DENSITRAK: DENSIMETERS



PRINCIPLE VIBRANT TUBES, HIGH PRECISION AND PERFORMANCE

- +/- 0.0001 g/cm³ resolution.
- Working range 0.4 to 1.4 g/cm³.
- For custody transfer and interface detection.
- Inline or insert models with remote electronics.

WELKER: SAMPLING SYSTEMS



FOR LIQUIDS AND GASES, DEVELOPED ACCORDING TO ISO-3171, API 8.2.

- Various mounting models, insert model and fast loop.
- Complete systems (skids and panels) with density measurement, BSW, mixers, pumps etc.
- Receptacles with local and remote level control and weighing systems.
- Probes with retractable extraction devices.

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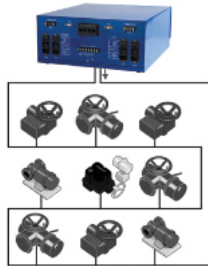
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ELECTRIC, PNEUMATIC, HYDRAULIC AND ELECTROHYDRAULIC VALVE ACTUATORS

Technologies to ensure better performance under the most difficult process conditions

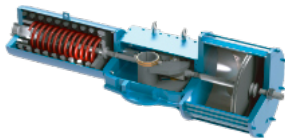
LIMITORQUE: ELECTRICAL ACTUATORS



1/4 TURN MULTI-TURN ACTUATORS, FOR ON-OFF OR MODULANT CONTROL

- Torque reducers actuators up to 442,000 Nm.
- Advanced AUTODIAGNOSTIC systems, protection and absolute encoder for position memorization in case of power failure.
- Analog outputs & inputs + Hart.
- Digital communication, Modbus (DDC), Foundation F. Bus, Profibus DPV1, PA (with FDT-DTM), Device Net.
- Valve telemetry systems and network diagnostics.

LIMITORQUE: PNEUMATIC AND HYDRAULIC ACTUATORS



- Lowest market operating cost.
- SIL-3 on-off and modulating applications.
- 1/4 turn, spring return and double acting (Scotch Yoke).
- Torques up to 300,000 Nm.
- Gas driven models. Pressures up to 207 barg.

ABERDEEN DYNAMICS: ELECTROHYDRAULIC ACTUATORS



LINEAR UP TO 942,000 LBIN - ROTARY UP TO 50,000 KLBIN TORQUE - SPRING RETURN

- 100% customized systems.
- On-off, modulators, safe failure, P. Stroke.
- Pipeline rupture sensors.
- Solar powered actuators.
- Hydraulic power units.
- Inventory containment systems.
- Emergency shutdown.



BAFCO: SPECIAL ACTUATORS & HPUS



SPECIAL ELECTRO-HYDRAULIC ACTUATORS

- Hydraulic power units.
- Servo valve frequency response analyzer.
- Performance systems for slides and plug valves for compressors and FCC.
- Actuators for large diameter butterfly valves.
- Control systems for steam turbine butterfly valves and electronic regulators.

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MICRO FLOW & PRESSURE METERS & CONTROLLERS

Technologies to ensure better performance under the most difficult process conditions

BRONKHORST: GAS FLOW METER AND CONTROLLER



EL-FLOW & MASS-STREAM: THERMAL

- » Flow ranges from 0.7 Nml / min to 5000 NI / min.
- » For all gas types, multi-range / multi-gas models.
- » Models with IP 40/65/67 enclosure (Ex).
- » Pressures up to 700 barg.
- » Accuracy from +/- 0.5%.
- » Analog outputs (Volt and Current), Modbus, Flowbus, Profibus, Devicenet.

BRONKHORST: LIQUID FLOW METER AND CONTROLLER



LIQUIFLOW: THERMAL

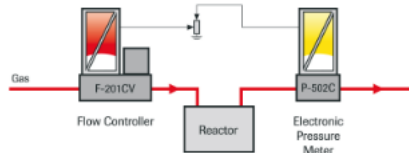
- » Working range: 0.1 to 1000 g / h,
- » IP 40 and 65, max pressure = 100 barg,
- » accuracy +/- 1.0%.



ES FLOW: ULTRASONIC

- » 100% non-intrusive, ideal for processes.
- » Sanitary (CIP), range from 4 to 1500 Nml / min.
- » 1/8 to 1/2 in. Connection, IP 67.
- » Analog Outputs (Volt and Current), Modbus, Flowbus, Profibus and Devicenet.

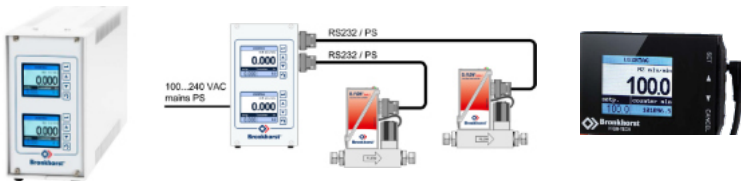
BRONKHORST: PRESSURE METER AND CONTROLLER



ELPRESS

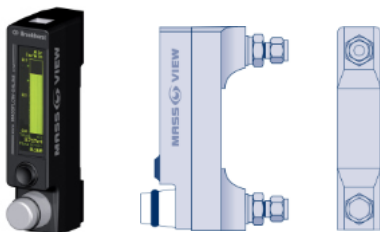
- » Absolute and differential pressure.
- » Working range from 2.0 up to 400 barg.
- » Accuracy +/- 1.0% fs.
- » IP 40 enclosure.

BRONKHORST: ELECTRONIC UNITS & ACCESSORIES



- » Power meters, controllers and send set point.
- » 110 / 220Vac input.
- » RS 232, or flow bus outputs (supports up to 2 instruments).
- » 19 "Rack or Bench Mount.
- » Display Bright: instantaneous flow, totaled.

BRONKHORST: TERMINAL METER IN THE FORM OF ROTOMETER



MASSVIEW

- » All gas types, various ranges available: 0.2 to 200 NI / min.
- » Oled display with bar graph indication and totalization.
- » With or without control valve.
- » Accuracy: +/- 2.0%.
- » Output: Analog (0-5V), Modbus-RTU and RS-232 interface.

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TRANSMITTERS, LIQUID AND SOLID LEVEL INDICATORS AND TANK TELEMETRY

Technologies to ensure better performance under the most difficult process conditions

VAREC: TANK LEVEL & TELEMETRY TECHNOLOGIES



RADAR

- Accuracy 1.0 to 10 mm. SIL 2 and 3, MNI and PTB approved, up to 40 m range.



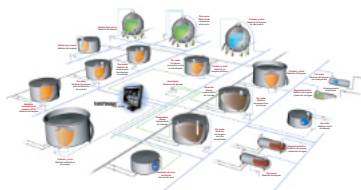
SERVANT

- Total Level (+/- 0.7mm), Interface (+/- 2.7mm), Density +/- 0.05 g / cc. main fluids, LPG, whites, alcohol, beverages, chemicals, up to 30 m range, temp. 200° C.



MECHANICAL

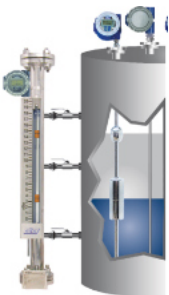
- Type Tape float, 4.0%, range up to 30 m, density 0.7 to 1.9 g / cc, optional transmitter with 4-20 mA output, up to 70 ° C main fluids, LPG, clear, alcohol, beverages, chemicals up to 30 m range, temp. 200° C.



REMOTE TERMINAL UNIT

- For integration multiple level instrumentation providers into one system while maintaining functionality and integration. Up to 100 tanks per RTU.

MAGNETIC LEVEL DISPLAY



LEVEL DISPLAY

- Custom Configurations, Manufactured to ASME B31-3.
- Pressure up to 5000 psig, optional heating accessories and insulation jackets, level switches and transmitter.

RESTRICTIVE MAGNETO TRANSMITTER

- High accuracy +/- 0.01%, with one or two floats, 4-20mA 2-wire Hart output, # 300 flange, optionally supplied with external chamber.

LASER LEVEL TRANSMITTER



- Continuous beam 50 mm, maximum divergence +/- 0.2 °, 10 mm accuracy
- Maximum Distance / Range 100 m
- IP 67 enclosure
- 4-20 mA outputs + 2 relays with USB input
- Application in silos, dark or opaque fluid tanks, crushing systems, gasometer distance, chemical reactors etc.

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MASSIC FLOW METERS AND TRANSMITTERS – THERMAL AND CORIOLIS TECHNOLOGIES

Technologies to ensure better performance under the most difficult process conditions

FCI: MASS FLOW THERMAL

FLOW METERS AND FLOW LEVEL SWITCHES

ST100



- Thermal dissipation FCI - fluid components.
- Flow measurement for gases without moving parts.
- Rangeability (up to 1000: 1).
- Comprehensive line of models for the most diverse applications.
- For inline mounting (reel model) up to 2 inches. and insert model (optional retractable connection).

MULTI POINT FLOW METER MT-100



- For chimney applications (CEMS), and air flow for large lines and ducts - temperatures up to 454 ° C. Ideal for combustion / furnace applications. Slight load loss.
- Uncertainty from 0.75 to 2.0%, analog and digital output signals (Foundation F Bus, Profibus, Modbus etc)
- Calibration in gases and blends, biogas, natural gas, CO₂, N₂, flare gas, compressed air and H₂.
- Flow switches for pump protection.

FLT KEY 93



FS10 KEY



MASS CORIOLIS



- Mass flow, density and temperature. Ideal for industrial and process applications, allocation, batching, dosing. Works with gases and liquids.
- 3/8" sizes (DN10) at 8 inches. (DN200). Flow from 16 kg / h to 2500 ton / h.
- 3 tube shapes to best suit your process.
- Flanged and threaded connections, material 304/316 SS.
- Uncertainty of $\pm 0.1\%$, with repeatability of $\pm 0.05\%$. For flow and density repeatability of $\pm 0.01\%$.
- Temperature range up to 250° C.
- 4-20 mA analog outputs and RS-485 digital frequency
- Hart communication.
- 4-20 mA analog outputs and RS-485 digital frequency.

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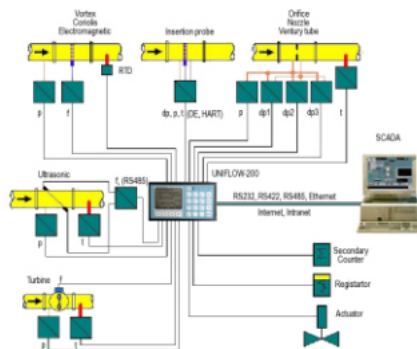
FLOW COMPUTERS

DYNAMIC FLOW COMPUTERS: COMPLETE LINE OF FIELD COMPUTERS



- Compliance with API & AGA standards. For liquids, gases, custody transfer, EMEDs (Measuring stations) and fitting room control (up to 4 batch).
- Works with all types of primary flow elements (VCones, plates etc), turbines and ultrasonic.
- Built-in multivariable cell and pressure and temperature sensors for gas measurement.
- Analog and RS 485 Modbus outputs.
- Several accessories for wireless communication and bluetooth and solar power.
- IP 66 and Ex d protection.

UNIFLOW 200: MODULAR HIGH-CAPACITY COMPUTER



- For hydrocarbons and gases, tax and custody measurement.
- Measures and calculates up to 8 real trams simultaneously.
- Calculates up to 4 virtual trams simultaneously.
- All types of meters, 4-20 mA inputs, pulse, RTD frequency.
- Interface with analyzers and chromatographs.
- Hourly measurement data files for up to 400 days.
- Calculation of energy, and CO2 emissions.
- Serial Ports: RS-232/422/485, ethernet, (USB Available)
- Communication: Modbus, Hart, Honeywell DE.

VEMMTEC: VOLUME CHECKER (PTZ)



- For use with turbines and rotary gas meters (high and low frequency).
- Battery or Vdc power.
- Optional temperature & pressure sensors.
- Outputs: analog (pulses and 4-20 mA), and optional modem: GSM / GPRS.

