



# INSTRUMENTATION & CONTROL SYSTEMS



Rig Control Products Ltd



## Our Industry Partners

At the very heart of every effective control system are the sensing devices. Poor choice and a lack of understanding of the process requirements can lead to reliability issues ultimately leading to costly downtime. RCP's long term partnerships with leading sensor manufacturers such as Barksdale Control Products and Hoffer Flow Controls gives us unparalleled access to over 40 years of sensor design and flow measurement expertise allowing us to provide unique solutions to our clients very few of our competitors can offer.

### Barksdale Control Products

Barksdale manufacture state-of-the-art sensor solutions for a number of industries including factory automation and transportation. Barksdale are specialists in mechanical and electronic measurement and reporting of pressure, temperature, level, flow, regulators and industrial control valves utilising Shear-Seal® technology.

Visit:  
[www.barksdale.com](http://www.barksdale.com)

**Barksdale®**  
CONTROL PRODUCTS

### Hoffer Flow Controls

Hoffer Flow Controls manufacture high precision liquid and gas turbine flowmeters specifically designed for use in a wide range of sectors including Pharma- Biotech, food and beverage and cryogenics. Hoffer also engineer custom solutions for unique flow metering applications and custody transfer. Their products are widely used where increased accuracy and reliability are critical to the process.

Visit:  
[www.hofferflow.com](http://www.hofferflow.com)

**HOFFER**  
Flow Controls  
Perfecting Measurement™

**RCP**  
Rig Control Products Ltd



Rig Control Products (RCP) have an outstanding reputation for delivering high quality innovative oilfield control equipment and engineering support services.

Our equipment portfolio includes hazardous area equipment, drill floor safety systems, subsea and well control equipment.



Systems are designed, built and maintained by an in house team of multi discipline engineers and service technicians working from our Aberdeen and Singapore bases.

RCP provide comprehensive rig support services including:

- Project Support - Site supervision, CAD Support
- PLC upgrades and coding
- Rig refit and SPS support - Installation teams
- Equipments Surveys - Control equipment, instrumentation, BOP and Choke panel surveys
- Equipment installation & supervision
- Cable installation and testing - Fibre, Profibus, Profinet and standard multicore
- Supply of contract ET's - Jackup, Semi & Drillship experience
- CompEx inspections and surveys - Compliance reporting and remedial work

For your peace of mind, our professional engineers, ET's and electricians will take ownership of equipment installations, diagnostics, surveys and field support.

# ANTI COLLISION



Rig Control Products have an enviable track record in the design and supply of collision avoidance systems used to intervene and manage dynamic drilling equipment

Our engineers have a wealth of knowledge and experience in systems used to intervene and manage dynamic equipment critical to safe drilling operations. RCP have designed and built multiple systems that continue to protect both personnel and equipment globally.

All RCP Anti-collision systems (ACS) are designed to integrate with the new generation of Travelling Block Monitor; we are experts in the design of automated drillfloor safety management systems.

RCP collision avoidance equipment protects assets for:  
Archerwell / Awilco Drilling / Chevron / TAQA / BP / Shell / TOTAL / KCA Deutag / Transocean / Dolphin Drilling / Ensco / Northern Offshore / Noble Drilling / Enquest / EDECO Petroleum Services.

## TRAVELLING BLOCK MONITOR (TBM)

The TBM is an advanced electronic floor and crown saver providing a safe working envelope for the travelling block.

The latest system is designed to be virtually maintenance free and proven to avert serious equipment collisions on the drill floor. Rigs that fit a TBM provide a much safer environment for personnel to work in. The system has a capacity to recall historical data and includes in built system and sensor diagnostics.



## COLLISION AVOIDANCE (ACS)

Collision avoidance systems monitor any change in the position of dynamic drilling equipment, typically pipe handling equipment such as the Link Tilt.

The collision avoidance system will warn the operator of any potential collision, appropriate action can then be taken to avoid injury or costly damages to equipment.

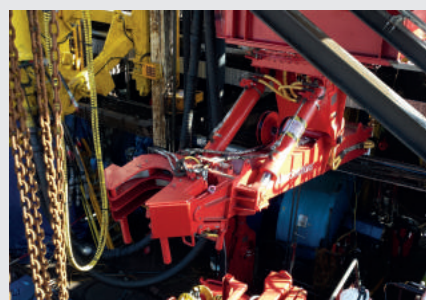
RCP utilise proven wireless technology to implement the Link Tilt anti-collision warning upgrade.



## ZONE MANAGEMENT (ZMS)

Zone management systems are designed to maintain a higher degree of safety on the drill floor over standard anti-collision systems.

RCP zone management systems are typically designed around the travelling block assembly and other pipe handling equipment such as the racking arms where they safeguard machinery, given certain conditions the system ensures that no two pieces of equipment occupy the same space at the same time avoiding collisions.





RCP offer a bespoke design service for all Blow Out Preventer and Diverter control panel systems.

The blow out preventer (BOP) is the most critical piece of safety equipment used in the drilling process. Systems used to control and monitor the BOP function integrity and well bore returns are equally as critical. RCP's range of subsea and surface BOP and Diverter control panels offer all necessary in built safety adhering to API regulations.

Delivering quality and reliability is central to our business values, BOP and Diverter systems offer clear, unambiguous control panel mimics, reliable and safe actuation of critical functions, accurate pressure read back and alarm information. RCP BOP E-log system is an option should the client require a comprehensive data logging package.



## BOP CONTROLS (BOP)

BOP control systems are supplied as traditional push-button panels or modern HMI touch-screen panels.

Both options utilise Siemens PLC technology to reliably control and log a range of BOP and Diverter functions. BOP functions are logged with the addition of the optional Event - logger. Dual redundant - high availability hardware is utilised to offer an additional level of system safety and reliability.



## DIVERTER CONTROLS

The Diverter control panel is a safety critical piece of well control equipment.

RCP design and build various types of Diverter control panels to suit your individual needs, from the traditional Koomey type 80 diverter skids to the more modern PLC controlled systems.

Our systems offer auto sequencing of control valves in order to maintain various elements of the diverter in place during a well control situation.

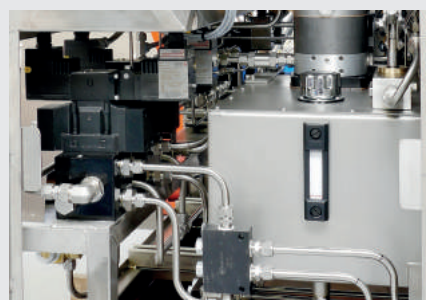


## HYDRAULIC POWER UNIT (HPU)

RCP design and supply a wide range of high quality HPU's certified for any application with pressure ratings to 22,000psi.

Renowned for quality of build, delivering and maintaining pressure and volume throughout the unit's life.

RCP also supply a wide range of hydraulic power packs providing pressure outputs from 350psi. Optional extras include tank by-pass valve, isolation valve and a chart recorder outlet port.



# WELL CONTROL



Well Control systems designed and built to API16C standards

RCP offer a range of bespoke solutions for well control equipment with the same build quality and design approach we give all API compliant systems.

Our API16C compliant choke console has been independently certified against the ATEX directive; the console also comes with CE marking.

Continued development of our well control systems has led to a recent roll out of a digital version of the fine scale gauge.

## CHOKE CONTROL CONSOLE (CCC)

RCP design and supply a wide range of high quality instrumentation and pressure control equipment.

Choke control consoles are specifically designed to ensure that the swept volume actuator requirements for your valve control applications are easily met. Adopting twin ferrule compression fittings throughout our range of pressured drilling instrumentation equipment ensures leak free connections and trouble free operation and reduced maintenance. Leading to what has been described by clients as a "highly reliable and quality piece of well control equipment".

A Mud Pump Stroke Counter can be supplied as an option.



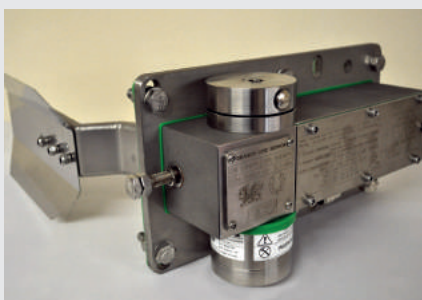
## BOP PROBES AND MUD FLOW SENSORS

### BOP probe

By fitting a BOP probe directly to the blow out preventer a higher degree of accurate temperature and pressure information can be realised. BOP probes are generally custom built with a range of connection options. Typical sensors can measure pressures of up to 15000psi in water depths of 3300m.

### Mud Flow Transmitter

Our mud flow transmitter's rugged design is ideally suited for reliable operation in the harshest of environments. Precise measurement of the paddle angle is uniquely derived using an encoder which offers far greater accuracy of the return mud flow over the more traditional potentiometer driven sensors. With 750 units sold, it is one of the most popular mud flow sensors on the market and is certified for use in a zone 0 hazardous area.

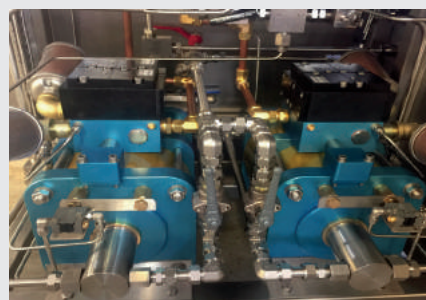


## GLYCOL INJECTION UNIT (GIU)

The GIU utilises an air operated double head dual acting pump to produce an extremely high pressure with an infinitely variable liquid flow.

Typical flow rates are given as 3.5 litres per minute (lpm) at 15000psi and 1.6lpm at 20000psi. The pump has been designed to deliver an infinitely variable flow rate using standard rig air pressure, GIU equipment is easily integrated into RCP's high pressure and temperature monitoring equipment for automatic control of glycol injection.

The dual head double acting pump is a highly reliable solution for any critical injection process. A second redundant pump can be included.





# ELECTRICAL EQUIPMENT

A wide range of electrical equipment for use in safe and hazardous environments alike, RCP offer custom builds and off the shelf solutions

RCP's range of electrical and control systems equipment has been developed over many years. Our equipment is used in many safety critical control and monitoring applications globally where they have been proven time and again.

RCP offer expertise in electrical control, automation and software engineering and offer clients a bespoke engineering and design service.



## HAZARDOUS AREA EQUIPMENT

When any electrical equipment is to be located within an area where the potential for flammable gas or dust being present exists, then the equipment must meet strict industry standards.

RCP have the specialist skills and knowledge to design, build and install electrical equipment and electrical circuits for use in hazardous areas. In house CompEx design engineers will assist in the design of your electrical circuits and where required our CompEx electricians will complete the installation of your equipment. See also services.



## POWER SUPPLIES (PSU)

Power supplies can be custom built for a wide variety of applications and loads.

Many of our PSU's are built for hazardous area installation where increased safety is required, our most popular PSU is designed for safe use in a zone 2 hazardous area. PSU's can also be supplied in a range of explosive proof enclosures including LM6 and stainless steel.

RCP also integrate bespoke uninterruptable power supplies for the equipment we build where a stable supply of emergency power is critical to the operation of equipment.

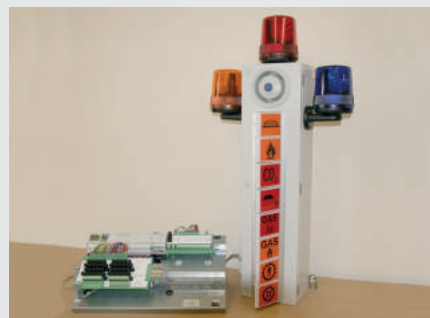


## LIGHT SIGNAL COLUMN (LSC)

Signal Light Column for ER - Light Signal Alarm System.

The light signal column is a mini-PLC based stand-alone, shipborne alarm system to indicate visual and audible alarms according to IMO regulations as well as classification society requirements. Controlled by a central unit the signal light column alarm system can also be adapted to your existing alarm and monitoring logic.

The sound generation is based on an innovative microprocessor technology and offers multiple acoustic philosophies with up to 120dB(A) sound level.



# INSTRUMENTATION



Our instrumentation & control systems are used in a wide range of industries including: oil and gas, petrochemical, renewables, power and water.

Each system is designed to display accurate information derived from a wide range of sensors and also maintain control of different components such as valves and motors; all control and monitoring signals are processed using the most robust hardware available ensuring responsive control with high reliability.

Data acquisition and playback is an option for clients who may need to log certain parameters for further analysis.

## RIG MONITORING SYSTEM (RMS)

Designed to display highly accurate process and read back information derived from an almost infinite number of sensors. (Data can be transmitted to remote clients using WITS O protocol)

Operators access a number of individually configured screens displaying a wide range of drilling information such as torques, pressures, levels, volumes, temperatures etc.

The system can also provide control for motor stop/starts, valve control, emergency shutdowns and allows CCTV integration.

Maintenance & diagnostics stations are provided along with data logging and remote access options.



## DATA ACQUISITION (DAQ)

RCP data acquisition systems are deployed in many industries to assist in predictive maintenance and condition based monitoring

Our systems can monitor a wide range of sensor inputs and can assist maintenance technicians in determining corrective maintenance, a more proactive maintenance schedule can offer costs savings and reduced downtime.

Technicians interpret equipment running data to determine performance, if there are anomalies in this data the technician is alerted and can plan accordingly





## BULK TANK MONITORING (BTM)

Bulk tank handling and monitoring solutions come with a wide choice of sensors, actuators and controllers to meet your requirements.

Systems provide accurate information of tank levels and volumes and can manage the transfer of bulk material between tanks and hoppers.

Weight measurement is derived using either a highly sensitive electronic load cell or the increasingly popular guided wave radar sensor which is now more commonly used to measure the bulk level in order to determine volume.



## CABIN PRESSURISATION SYSTEM (DPS)

Fitting a pressurisation system to any cabin located within a potentially hazardous area allows the operator to re-classify the cabin to a safe area.

This solution offers substantial cost savings when installing or refurbishing equipment as it removes the need to fit explosion-proof equipment into the cabin.

Standard industrial equipment can quite safely be installed in its place also making any future changes within the cabin layout and design are made far simpler.

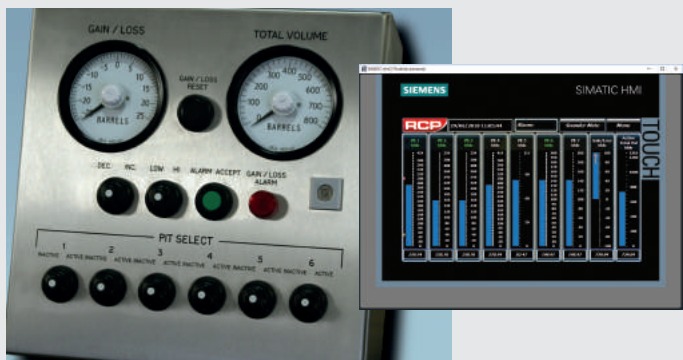


## PIT VOLUME TOTALISER (PVT)

Pit volume monitoring systems are supplied as standalone units or fully integrated pit monitoring systems for up to six mud pits.

Originally developed for the land rig market, this rugged system provides accurate information for mud gain and loss and instantly calculates total pit volumes.

High and low alarms can be set for mud gain and mud loss, alarm warnings are given should any pit set point be exceeded.



## HIGH PRESSURE / HIGH TEMPERATURE (HPHT)

The operator needs to be able to rely on highly accurate and unambiguous information on how the well is responding.

Bespoke design allows for a wider range and type of sensor to be considered for your system, critically the design of the BOP probe itself can prove complex. With an in depth knowledge of HPHT well monitoring and sensor design RCP can assist in designing and installing the very latest HPHT monitoring and data logging solutions. By monitoring choke, kill, buffer tank pressures, temperatures, liquid seal integrity and mud flow return, the client is provided with a good overview of the drilling process.



# BRAKE CONTROL



## Rapid and reliable brake control and monitoring systems

RCP Eddy current brake control products utilise a range of PWM and SCR technologies to provide a responsive and highly reliable DC controller as used on many of the older generation of rigs. We provide direct replacements for PWM systems and will design a solution should you have any specific requirements.

Our brake control systems are complimented by a range of brake monitoring and emergency battery back-up products.

## EDDY CURRENT BRAKE CONTROL

The RCP brake controller utilises modern power electronics to rapidly supply 250 volts DC to the auxiliary brake coils.

Power for the system is derived from a three phase full wave silicone controlled rectifier assembly supplied by a 30KVA, 60Hz 440VAC 3 phase transformer.

The highly responsive nature and improved reliability of the SCR controlled system will enhance the safety of the drill floor for crew and travelling equipment alike.



## DISK BRAKE CONTROL, CONVERSIONS AND SUPPORT

Replacement of less powerful band brakes for modern disc brakes is a direct means of increasing a rigs load holding capacity.

RCP have designed and built a number of bespoke hydraulic power units for various disc brake conversions, designed to improve fine control over braking under increased loads and help reduce driller's fatigue.

By replacing the mechanical brake handle with an electronic failsafe joystick we also enhance the safety of the overall braking system.





## BRAKE MONITOR (BMU)

The BMU is a PLC based system that actively monitors critical control and power requirements of the brake circuits.

Systems are designed to monitor a wide range of control and power inputs, outputs, system sensors and also the flow and temperature of the cooling circuit. The PLC controller also performs a continuous self-check.

Typical points monitored by the BMU include:

- AC Phase Status • PLC status • Battery Backup Available
- Charger Healthy • Brake Coil Failure • Earth Fault
- Command Signal Mismatch • High Temperature Alarm
- Brake cooling circuit temperature and level monitoring

When an RCP BMU is in operation the operator can be fully confident that power and control systems for the safe operation of the brakes is available at all times offering confidence in his equipment.



“RCP brought our projects in on time and within budget. They also provided us with alternative solutions and suggested better options”

## EDDY CURRENT BATTERY CHARGER

RCP's bestselling battery charger converts 240VAC input into a 272VDC output connected to the battery bank.

A float charge maintains the batteries at a healthy level however the system automatically provides an equalise charge to boost the charging voltage to 286VDC as required.

The boost function provides a maximum charging current of 6A allowing for a rapid yet controlled charge.

A battery switchover unit controls the connect and disconnect of the batteries with a built in timer to protect the batteries from completely discharging.

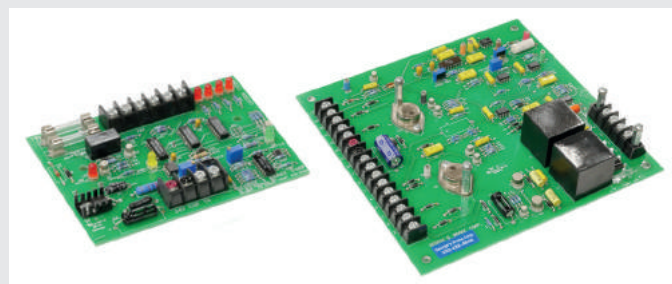


## PWM SPARES AND SUPPORT

RCP can provide technical support and spares for many manufactured PWM products.

RCP can help support and replace many of the early PWM systems such as PWM-10, PWM-20, PWM80A-CL that operate the Eddy Current Brakes. We also stock PWM and battery backup systems for immediate delivery

We are also able to supply many of the Eddy current brake parts including Bearings, Seal Sleeves, Seal Retainers, Oil Seals, Lock-washers, Locknuts, End Rings, Rotors, Shafts, Centre Plates and Rebuilt Magnet Assemblies and Rebuilt Eddy Current Brake Assemblies.



# MARINE

Innovative marine solution for enhanced safety of marine assets and personnel, systems comply and adhere with many current industry standards such as CAP347, IMO, LSAS.

RCP offer a wide range of equipment and systems used to provide and enhance marine operations. Our systems are designed with one purpose in mind, to enhance the safety of personnel and equipment operating in the harshest of marine environments.

The systems within the section are innovative products designed and built by engineers.

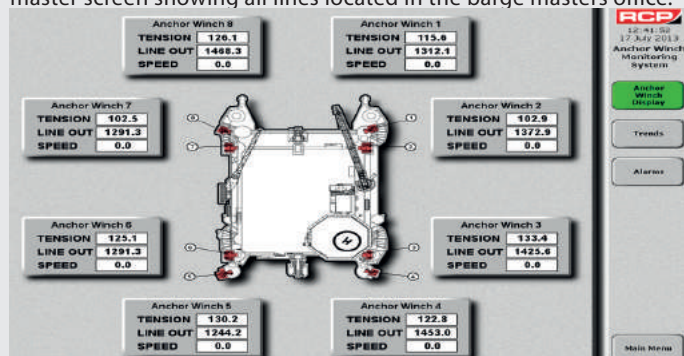


## ANCHOR WINCH MONITORING (AWM)

Anchor winch line monitoring provides operators with highly accurate information of a number of anchor line parameters.

AWM provides operators with a simple system that displays line tension, pay-out length and pay-out rate, this data is derived from a standard running line monitor. Line information is critical for the safe operation of running in anchors and maintaining a stable position.

Text displays are positioned at each anchor winch point with a master screen showing all lines located in the barge masters office.



## DECK MOTION MONITOR (DMM)

The DMM extends the weather window for safe offshore crane loading operations by monitoring the motion of the cargo deck.

The system uses Wi-Fi technology to transmit critical motion data between the supply vessel and the crane operator. The DMM processes this information and produces a real time wave curve from which the Crane Operator is able to determine where to land or lift cargo and personnel from safely. Real time video feeds are also available to the crane operator improving his overview of the lift.





## HELIDECK MONITORING SYSTEM (HMS)

RCP offer a cost-effective solution to managing flights safely and efficiently between offshore vessels, rigs and platforms.

The system provides motion and meteorology information for offshore aviation and has various unique features which contribute to its success including voice, data and video recording and instant playback.

Pre-flight reports are issued to assist with flight planning and can be emailed to operators to assist with forward planning and ensure safe condition for travel.



"RCP were a great help in terms of their technical assistance, they are by far one of the best companies we have ever worked with"

Archerwell

## POSITION MONITORING SYSTEM (PMS)

The Position Monitoring System displays the distance between a platform and an approaching tender support rig or floatel.

RCP employ a marine radar system for this purpose however when the distance between platform and the approaching rig reaches less than 10m, additional sensors are then utilised affording greater accuracy. The system also monitors, and more importantly, logs data such as heave, roll and pitch of the vessel, compass bearing, wind speed and direction. This consolidates the system as a credible backup to any existing environmental monitoring equipment.

The data presented by the system can be critical in the decision making process when manoeuvring a tender support rig or floatel alongside any fixed platform.



## VIRTUAL AUTOMATIC IDENTIFICATION SYSTEM (VAIS)

VAIS beacons clearly identify marine hazards visible without the need for costly physical infrastructure such as marker buoys.

The virtual markers are recognised by the International Maritime Organisation (IMO) as a virtual aid to navigation (VAtON). When a virtual AIS beacon electronically marks hazards they become visible on Electronic Chart Display Information System (ECDIS), chart plotting and other AIS systems and can be used to prevent collisions and protect marine assets such as subsea cables, sites of scientific interest or marine exclusion zones.

### Benefits of VAIS

- Easy to install and maintain • Cost effective
- Allows AtoN markers to be positioned in inaccessible areas
- Add / remove AtoN markers easily • Very low cost of ownership



# RENEWABLES & CCTV

## SOLAR POWER UNIT (SPU)

Solar panel units are designed to supply critical power to a wide range of electrical equipment used in off-grid locations.

RCP are a leading supplier of solar power and battery back-up systems typically used for "off-grid" applications. Solar power systems offer a low-cost installation option for a wide range of electrical equipment generally located in remote and potentially hazardous environments where a reliable energy supply is unavailable.

RCP offer a wide range of system design options including: onshore, marine, harsh environment and ATEX/IECEx compliant systems.

Each solar power system is uniquely engineered to perfectly match the given load requirement wherever the location in the world.

With an RCP solar power system, you can be assured that you will have a safe and reliable energy source available to power your critical equipment throughout the day and night.



## HAZARDOUS AREA CCTV

As an Axis channel partner RCP engineers undergo world class training in using the very latest CCTV technology. We are part of a global network of industry recognised experts that offer the highest level of after sales service and support to our customers.

CCTV cameras, video image recording, and video software are commonly used to maintain and secure a safe working environment for employees and the public. RCP's knowledge of this everchanging market enables us to propose the very latest solutions for any given application. We are able to choose from a wide range of hazardous area fixed, pan tilt and zoom and panoramic cameras available on the market today including the very latest thermal imaging cameras.

RCP CCTV systems are currently being used for the following:

- Remotely monitor sensitive and hazardous locations, visually inspect and verify that working practices and processes are carried out safely.
- Monitor plant perimeters, warn and direct personnel from potential danger.
- Provide remote troubleshooting and assistance with maintenance and support.



"RCP had the perfect solutions for us in our search for an IECEx solar power system, we had a short delivery time for our project and RCP delivered on time, and with great support before, during and after the project.

The system is currently in use on an off-grid oilfield instrumentation application





Providing quality, reliability  
and improved cost  
efficiency throughout a  
range of sectors



ABERDEEN  
Excalibur House  
Woodburn Road, Blackburn Industrial Estate  
Blackburn, Aberdeenshire, AB21 0RX  
sales@rcpat.com  
+44 (0) 1224 798312

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SINGAPORE  
12 Pioneer Sector 1, Singapore, 628423  
sales@rcpat.com  
+65 9029 4005

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UNITED ARAB EMIRATES  
Emirates Link Technology  
P.O. Box 31234  
Abu Dhabi, U.A.E  
jerry.s@emirateslink.com  
+971 56 4144 882