

# COSSD PRODUCT CATALOGUE

for

**ROCK**  
DATA SERVICES LTD.

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## DOWN HOLE PRODUCTS

### HELLSEEKER HYBRID QUARTZ GAUGE

Panther's Hellseeker Hybrid Quartz Probe is a highly precise, down hole electronic pressure/temperature memory gauge. It is designed with leading technology that is unmatched by any other product currently available.

Panther Probe uses Quartzdyne technology that provides our gauge with high resolution, reproducibility, and long-term stability combined with the ruggedness needed for successful long term well testing.

Our new Hellseeker Hybrid tool is a culmination of 18 years experience in pressure recorder design and hybrid technology. We have taken out all the typical failure mechanisms in printed circuit design using bare die (no plastic encapsulation) and have sealed our ceramic substrate in a hermetic module. We then mount our hybrid module in a secondary pressure proof housing using a connector rated to 20,000 psi and 200 degrees Celcius.

### TECHNICAL SPECIFICATIONS

PRESSURE	
Accuracy (% of full scale)	0.02
Resolution (% of full scale)	0.00006 or 0.02 kPa 35000 kPa gauge
Repeatability (% of full scale)	< 0.01 error
Available Sensors	3.5 mPa - 138 mPa (5,000 psi - 20,000 psi)
TEMPERATURE	
Accuracy	0.2 ° C
Resolution	0.01 ° C
Operating Temperature	190 ° C
CAPACITY	
Number of Data Sets	1,000,000 sets
Battery Capacity (days)	225 days @ 30 seconds

PHYSICAL	
Outside Diameter	1.32 inch (3.35 cm)   1.25 inch (3.18 cm)
Length	22 inch (55.88 cm)   24.6 inch (62.48 cm)
Tranducer Type	Quartzdyne quartz resonator
Material	Hastelloy C-276 and Incolloy 718 / 925
POWER REQUIREMENTS	
Voltage	3V
Source	Lithium Battery
Battery Type	1 CC Cell Pack
COMMUNICATION	
Type:	USB



## STRAIN GAUGE (SILICON PROBE)

Panther's Silicon Probe is an accurate, down hole electronic measuring memory probe.

Panther Probe uses an exclusive silicone-crystal technology that provides a gauge with accuracy, reliability and stability for successful well testing.

Our Silicone probe comes assembled, pre-programmed and ready to go. The software provided is easy to use for changing programs and/or downloading data.

Panther Silicone Probe is design for long term testing and is very cost efficient to operate.

## QUARTZ GAUGE

Panther's Quartz Probe is a highly precise, down hole electronic pressure/temperature memory probe. The Panther Probe is designed with the leading technology that is unmatched by any other product currently available.

Panther Probe uses Quartzdyne technology that provides our gauge with high resolution, reproducibility, and long-term stability combined with the ruggedness needed for successful long term well testing.

Our Quartz probe comes assembled, pre-programmed and ready to go. The software provided is easy to use for changing programs and/or downloading data.

Panther Quartz Probe is designed for long term testing and is very cost efficient to operate.

## PRESSURE

Accuracy (% of full scale)	0.02
Resolution (% of full scale)	0.00006 or 0.02 kPa 35000 kPa gauge
Repeatability (% of full scale)	< 0.01 error
Available Sensors	3.5 mPa - 138 mPa (5,000 psi - 20,000 psi)

## TEMPERATURE

Accuracy	0.2 ° C
Resolution	0.01 ° C
Operating Temperature	150 ° C

## CAPACITY

Number of Data Sets	3,000,000 sets expandable to 4,000,000
Battery Capacity (days)	73 @ 5 second   209 @ 60 seconds

## PHYSICAL

Outside Diameter	1.32 inch (3.35 cm)   1.25 inch (3.18 cm)
Length	22.2 inch (56.5 cm)   26.6 inch (67.5 cm)
Tranducer Type	Quartzdyne quartz resonator
Material	Hastelloy C-276 and Incolloy 718 / 925

## POWER REQUIREMENTS

Voltage	3V
Source	Lithium Battery
Battery Type	1 CC Cell Pack

## COMMUNICATION

Type:	Parallel to USB
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## SURFACE PRODUCTS

### PANTHER PRESSURE DISPLAY

The Pressure Display is compact and easy to handle. Features include sour service, soft zero, selectable units (kPag, psig), robust mechanical design and high resolution.

#### NO COMPROMISE FEATURES

Peizoresistive technology  
Sour Service  
Robust mechanical design  
Selectable units (kPag, psig)  
Soft zero feature  
Compact, easy to handle  
High resolution

### TECHNICAL SPECIFICATIONS

PRESSURE	
Accuracy (% of full scale)	0.05
Resolution	0.1 kPa
Available Sensors	2 mPa - 69 mPa
PHYSICAL	
Type	Peizoresistive
Power Source	Alkaline or Lithium
Material	Housing 6061 Aluminium
Height	14 cm
Width	7.5 cm
Depth	6 cm

## PANTHER WIRELESS SURFACE LOGGER

The Panther Wireless Surface Logger features include piezoresistive technology, programmable sample rates (1 sec to 1 min), 100 m (328 ft) transmission range, and robust mechanical design.

### NO COMPROMISE FEATURES

Piezoresistive technology

Robust mechanical design

Programmable sample rates (1 sec to 1 min)

100 m (328 ft) transmission range

## TECHNICAL SPECIFICATIONS

PRESSURE	
Accuracy (% of full scale)	0.05
Resolution (% of full scale)	0.00006 or 0.02 kPa 35000 kPa gauge
Available Sensors	1.0 mPa - 103 mPa (150 psi - 15000 psi)
TEMPERATURE	
Accuracy	0.5 ° C
Resolution	0.01 ° C
Operating Temperature	-40 to 80 ° C
PHYSICAL	
Outside Diameter	3 inch (7.62 cm)
Length	7 inch (17.78 cm)
Transducer Type	Silicon Crystal
Material	Aluminium
POWER REQUIREMENTS	
Voltage	3V
Source	Lithium Battery
Battery Type	4C-cell Pack
COMMUNICATION	
Type:	XBee Wireless

## SINGLE CHANNEL SURFACE RECORDER

The Surface Probe is a portable accurate measuring memory surface unit. Panther's Surface Probe is based Silicon-Crystal Sensor technology, ideal for surface measurement due to its rugged durability. The Surface Probe gives you extreme flexibility, accuracy and memory. This unit is power efficient (2-d cell batteries 440 days sample rate every 30 seconds).

Our Surface Probe comes assembled, pre-programmed and ready to go. The software provided is easy to use for changing programs and/or downloading data.

Panther Surface Probe is design for long term testing and is very cost efficient to operate.

## TECHNICAL SPECIFICATIONS

PRESSURE	
Accuracy (% of full scale)	0.05
Resolution (% of full scale)	0.00006 or 0.02 kPa 35000 kPa gauge
Available Sensors	1.0 mPa - 103 mPa (150 psi - 15000 psi)
TEMPERATURE	
Accuracy	0.5 ° C
Resolution	0.01 ° C
Operating Temperature	-40 to 80 ° C
CAPACITY	
Number of Data Sets	4,000,000 sets per channel
Battery Capacity	2 years
PHYSICAL	
Outside Diameter	3 inch (7.62 cm)
Length	7 inch (17.78 cm)
Tranducer Type	Silicon Crystal
Material	Aluminium
POWER REQUIREMENTS	
Voltage	3V
Source	Lithium Battery
Battery Type	4C-cell Pack
COMMUNICATION	
Type:	Parallel/USB

## SINGLE CHANNEL DISPLAY LOGGER

### NO COMPROMISE FEATURES

Peizoresistive Technology  
 Night Viewable OLED Display (-45°C to 80°C)  
 Real Time Clock  
 Hazardous Location Approval Class 1 Div. 2

### UNPARALLELED WARRANTY & SERVICE

World-wide service International warranty excepting gross mechanical damage International maintenance agreement available manufactured and serviced in Canada.

## TECHNICAL SPECIFICATIONS

PRESSURE	
Accuracy (% of full scale)	0.05
Resolution (% of full scale)	0.00006 or 0.02 kPa 35000 kPa gauge
Available Sensors	1.0 mPa - 103 mPa (150 psi - 15000 psi)
TEMPERATURE	
Accuracy	0.5 ° C
Resolution	0.01 ° C
Operating Temperature	-40 to 80 ° C
CAPACITY	
Number of Data Sets	4,000,000 sets per channel
Battery Capacity	162 days @ 5 sec - 762 days @ 60 sec
PHYSICAL	
Width	5 inch
Length	10 inch
Tranducer Type	Silicon Crystal
Material	216 SS
POWER REQUIREMENTS	
Voltage	3V
Source	Lithium Battery
Battery Type	2 D-cells
COMMUNICATION	
Type:	USB



# SERVICES

## CALIBRATION SERVICES

Instrumentation technicians at Rock Data are capable of calibrating any gauge to pressures up to 20,000 psi (137,896 kPa), and temperatures as high as 200 C (392 F) and as low as -40 C (-40 F).

These calibrations are performed using high-standard equipment and practices – including 3 oven units capable of the necessary temperatures, automated calibrating systems, and dead-weights.

Rock Data Services is the recommended calibrator of our Panther Probe electronic memory recorders.

## AER REPORTING SERVICES

Our reporting staff produces a variety of high quality oilfield reports – including static gradients, build-ups, acid squeezes, pressure transient analysis, and various fracturing applications. With over 20 years of analysis and data reporting experience within Rock Data, they ensure that the completion of reports is prompt, professional, and reliable.

Along with producing AER standard reports, Rock Data offers AER submission and certification services – allowing oil companies relief from worry over the submission status of a well test. Tests can be submitted directly by Rock Data Services, or certified by us for submission by you at a later date.

\*AER: Alberta Energy Regulator

## PANTHER PROBE RENTAL

We offer worldwide rentals of our entire Panther Probe tool line – including downhole quartz and strain gauges, surface recorders, and pressure displays/deadweights.

Tool rentals can be ordered by filling out a custom rental order form – ensuring that you get the right tool for your needs. As well, orders can be taken over the phone by our knowledgeable inventory staff.

All Panther Probe tools are manufactured in Canada using high quality materials and techniques.

## BATTERY SALES

Rock Data is capable of manufacturing quality battery packs for a large variety of use and applications. Our battery packs are manufactured in Canada with safety and efficiency in mind. They are available to suit most specs – including temperatures up to 200 C (Lithium) or 80 C (Alkaline).

## TOOL REPAIR AND CONVERSION

The technicians at Rock Data Services also offer tool diagnostic and repair services for tools damaged or otherwise impaired in the field. As well, we offer tool conversion services – converting gauges to Panther Probe quality and technology.



## Panther High Temperature Silicon Probe (1.32) .....

LATEST 2011 TECHNOLOGY

## PERFORMANCE-DRIVEN INNOVATION

### No Compromise Features

- Peizoresistive technology
- Sour service
- Robust mechanical design
- Low Drift Sensor
- Quick stabilization (ideal for gradients)

### Unparalleled Warranty & Service

- World-wide service
- International warranty excepting gross mechanical damage
- International maintenance agreement available
- Manufactured and serviced in Canada



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At Panther Probe, we strive to provide specifications that are reflective of actual downhole performance - not just theoretical values. If you have any unique applications or questions relating to our tools, or our "Rock Solid Guarantee", please contact us for more information.

## PRESSURE

Accuracy (% of full scale)	0.03 (typical 0.025)
Resolution (% of full scale)	0.00006 or 0.02 kPa 35000 kPa gauge
Available Sensors	35 mPa - 138 mPa (5000 psi - 20000 psi)

## TEMPERATURE

Accuracy	0.2 ° C
Resolution	0.01 ° C
Operating Temperature	Short term capability - 175 ° C (1 week or less)
Operating Temperature	Long term capability - 150 ° C

## CAPACITY

Number of Data Sets	4,000,000 sets
Battery Capacity	280 days @ 10 sec, 415 days @ 60 sec

## PHYSICAL

Outside Diameter	1.32 inch (3.35 cm)
Length	18 inch (45.7 cm)
Transducer Type	High Temperature, Low Drift - Silicon Crystal
Material	Hastelloy C-276 & Incolloy 718 / 925

## POWER REQUIREMENTS

Voltage	3V
Source	Lithium Battery
Batter Type	1 CC Pack

## COMMUNICATION

Type	USB
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**Panther II Silicone Probe (1.25) .....**

**LATEST TECHNOLOGY**

## **PERFORMANCE-DRIVEN INNOVATION**

### **No Compromise Features**

- Peizoresistive technology
- Sour service
- Robust mechanical design
- Programmable
- Quick stabilization (ideal for gradients)

### **Unparalleled Warranty & Service**

- World-wide service
- International warranty excepting gross mechanical damage
- International maintenance agreement available
- Manufactured and serviced in Canada

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At Panther Probe, we strive to provide specifications that are reflective of actual downhole performance - not just theoretical values. If you have any unique applications or questions relating to our tools, or our "Rock Solid Guarantee", please contact us for more information.

Technical Specifications: Panther II Silicon Probe (1.25)

#### PRESSURE

Accuracy (% of full scale)	0.03 (typical 0.025)
Resolution (% of full scale)	0.00006 or 0.02 kPa 35000 kPa gauge
Available Sensors	1.0 mPa - 103 mPa (150 psi - 15000 psi)

#### TEMPERATURE

Accuracy	0.5 ° C
Resolution	0.01 ° C
Operating Temperature	USB Board 150 ° C - Parallel Board 150 ° C

#### CAPACITY

Number of Data Sets	4,000,000 sets
Battery Capacity - USB Board	375 days @ 5 sec - 1200 days @ 60 sec
Battery Capacity - Parallel Board	235 days @ 5 sec - 332 days @ 60 sec

#### PHYSICAL

Outside Diameter	1.25 inch (3.18 cm)
Length	18 inch (45.7 cm)
Transducer Type	Silicon Crystal
Material	Hastelloy C-276 & Incolloy 718 / 925

#### POWER REQUIREMENTS

Voltage	3V
Source	Lithium Battery
Batter Type	1 sub CC Pack

#### COMMUNICATION

Type	USB
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## Panther Silicone Probe (0.5)

LATEST TECHNOLOGY

## PERFORMANCE-DRIVEN INNOVATION

### No Compromise Features

- Peizoresistive technology
- Source service
- Robust mechanical design
- Programmable
- Quick stabilization (ideal for gradients)

### Unparalleled Warranty & Service

- World-wide service
- International warranty excepting gross mechanical damage
- International maintenance agreement available
- Manufactured and serviced in Canada

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## Technical Specifications: Panther Silicon Probe (0.5)

### PRESSURE

Accuracy (% of full scale)	0.03 (typical 0.025)
Resolution (% of full scale)	0.00006 or 0.02 kPa 35000 kPa gauge
Available Sensors	1.0 mPa - 103 mPa (150 psi - 15,000 psi)

### TEMPERATURE

Accuracy	0.5 ° C
Resolution	0.01 ° C
Operating Temperature	150 ° C

### CAPACITY

Number of Data Sets	1,000,000 sets
* Battery Capacity - Single Pack	28 days @ 10 sec samples   132 days @ 60
Battery Capacity - Double Pack	56 days @ 10 sec samples   264 days @ 60

### PHYSICAL

Outside Diameter	0.5 inch (1.27 cm)
Length	10 inch (25.4 cm) or 12.25 inch (31.11 cm)
Transducer Type	Silicon Crystal
Material	Incolloy 625 / 718

### POWER REQUIREMENTS

Voltage	3V
Source	Lithium Battery
Batter Type	* AAA or 2 AAA Pack

### COMMUNICATION

Type	USB
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## Panther Silicone Probe (0.625)

LATEST TECHNOLOGY

## PERFORMANCE-DRIVEN INNOVATION

### No Compromise Features

- Peizoresistive technology
- Source service
- Robust mechanical design
- Programmable
- Quick stabilization (ideal for gradients)

### Unparalleled Warranty & Service

- World-wide service
- International warranty excepting gross mechanical damage
- International maintenance agreement available
- Manufactured and serviced in Canada

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At Panther Probe, we strive to provide specifications that are reflective of actual downhole performance - not just theoretical values. If you have any unique applications or questions relating to our tools, or our "Rock Solid Guarantee", please contact us for more information.

## Technical Specifications: Panther Silicon Probe (0.625)

### PRESSURE

Accuracy (% of full scale)	0.03
Resolution (% of full scale)	0.00006 or 0.02 kPa 35,000 kPa gauge
Available Sensors	1.0 mPa - 103 mPa (150 psi - 15,000 psi)

### TEMPERATURE

Accuracy	0.5 ° C
Resolution	0.01 ° C
Operating Temperature	150 ° C

### CAPACITY

Number of Data Sets	1,000,000 sets
* Battery Capacity - Single Pack	28 days @ 10 sec samples   132 days @ 60
Battery Capacity - Double Pack	56 days @ 10 sec samples   364 days @ 60

### PHYSICAL

Outside Diameter	0.625 inch (1.59 cm)
Length	11.5 inch (29.21 cm )   12.75 (32.29 cm)
Transducer Type	Silicon Crystal
Material	Incolloy 625 / 718

### POWER REQUIREMENTS

Voltage	3V
Source	Lithium Battery
Batter Type	* AAA or 2 AAA Pack

### COMMUNICATION

Type	USB
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## Panther Silicone Probe (0.75)

LATEST TECHNOLOGY

## PERFORMANCE-DRIVEN INNOVATION

### No Compromise Features

- Peizoresistive technology
- Sour service
- Robust mechanical design
- Programmable
- Quick stabilization (ideal for gradients)

### Unparalleled Warranty & Service

- World-wide service
- International warranty excepting gross mechanical damage
- International maintenance agreement available
- Manufactured and serviced in Canada

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## Technical Specifications: Panther Silicon Probe (0.75)

### PRESSURE

Accuracy (% of full scale)	0.03
Resolution (% of full scale)	0.00006 or 0.02 kPa 35,000 kPa gauge
Available Sensors	1.0 mPa - 103 mPa (150 psi - 15,000 psi)

### TEMPERATURE

Accuracy	0.5 ° C
Resolution	0.01 ° C
Operating Temperature	150 ° C

### CAPACITY

Number of Data Sets	1,000,000 sets expandable to 4,000,000
Battery Capacity	63 days @ 10 sec samples   303 days @ 60

### PHYSICAL

Outside Diameter	0.75 inch (1.91 cm)
Length	10.5 inch (26.67 cm)
Transducer Type	Silicon Crystal
Material	Hastelloy C-276 & Incolloy 718 / 925

### POWER REQUIREMENTS

Voltage	3V
Source	Lithium Battery
Batter Type	1 "AA" Cell Pack 1.6 Ah

### COMMUNICATION

Type	RS-232 to USB
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## Panther Silicone Probe (0.85)

LATEST TECHNOLOGY

## PERFORMANCE-DRIVEN INNOVATION

### No Compromise Features

- Peizoresistive technology
- Sour service
- Robust mechanical design
- Programmable
- Quick stabilization (ideal for gradients)

### Unparalleled Warranty & Service

- World-wide service
- International warranty excepting gross mechanical damage
- International maintenance agreement available
- Manufactured and serviced in Canada

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## Technical Specifications: Panther Silicon Probe (0.85)

### PRESSURE

Accuracy (% of full scale)	0.03
Resolution (% of full scale)	0.00006 or 0.02 kPa 35,000 kPa gauge
Available Sensors	1.0 mPa - 103 mPa (150 psi - 15,000 psi)

### TEMPERATURE

Accuracy	0.5 ° C
Resolution	0.01 ° C
Operating Temperature	150 ° C

### CAPACITY

Number of Data Sets	1,000,000 sets expandable to 4,000,000
Battery Capacity	104 days @ 10 sec   215 days @ 60 sec

### PHYSICAL

Outside Diameter	0.85 inch (2.16 cm)
Length	12 inch (30.48 cm)
Tranducer Type	Silicon Crystal
Material	Hastelloy C-276 & Incolloy 718 / 925

### POWER REQUIREMENTS

Voltage	3V
Source	Lithium Battery
Batter Type	1 AA Cell Pack 1.6 Ah

### COMMUNICATION

Type	USB
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