

# OFFSHORE CRANE & WINCH MONITORING SYSTEMS

BY RAYCOWYLIE

[RAYCOWYLIE.COM](http://RAYCOWYLIE.COM)

  
**RaycoWylie**  
SYSTEMS

# INNOVATIVE PRODUCTS OF EXPERIENCE

## EARLY BEGINNINGS

Rayco Electronic System Limited was founded in June 1979 (43 years ago) following the registration of the newly patented Range Limiting Device (Work area definition or zone access control) for lifting equipments such as cranes of all types and other machines such as excavators.

## EXPANDING WORLDWIDE

In 1994, Rayco increased its presence in the Heavy Machinery Instrumentation market by acquiring The B&A Engineering Company Limited founded in 1933 after the release of the newly patented Load Moment Indicator (Rated Capacity Indicator) for cranes of all types.

Through the combined expertise, experience and passion of the employees, Rayco was able to enhance its state-of-the-art technologies in line with the evolution of the machines and the market expectation.

## MISSION

Our mission is to engineer and manufacture Heavy Machinery Instrumentation for a Worldwide market within high standards while keeping the focus on solutions to maximize efficiency and safe operation.

Rayco will provide its customers with high quality competitive products and support, with the objective of being the accepted number 1 supplier on the market.

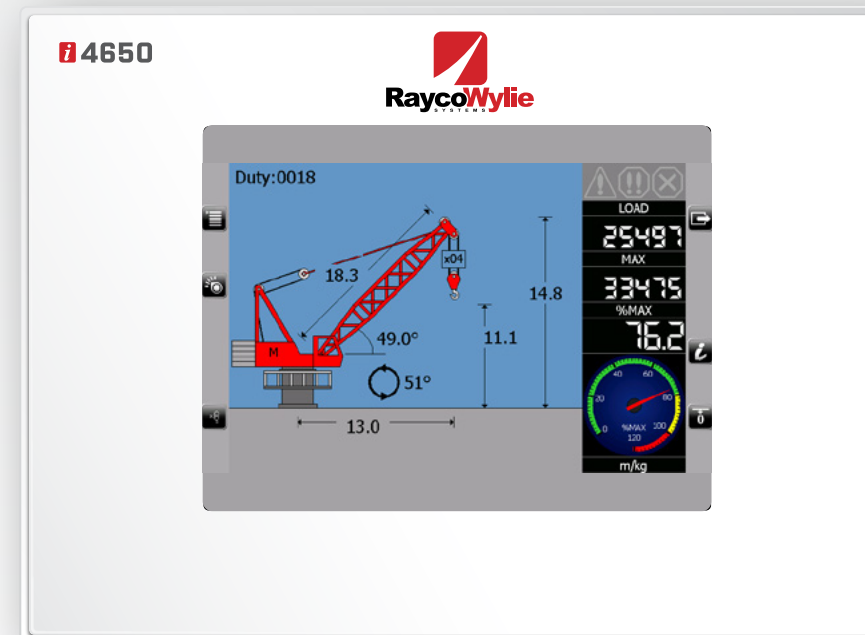
## PRODUCT SUPPORT

Rayco's product support foundation was built strong as we believe it is the most important aspect of our business plan. We also believe it is the main reason why Rayco has maintained the trust of customers from five continents for more than 43 years and for more than 88 years when adding our British acquisition.

This is our PRODUCT SUPPORT offer:

- Engineered products to customers' expectations;
- Reliable products for long term and continuous use;
- Complete bench test of all assemblies and limited warranty;
- Service centers in Canada, USA, United Kingdom, Singapore and Egypt;
- Documentation, technical support and field service;
- Stock of parts, exchange parts and shop repair.

# OFFSHORE RATED CAPACITY INDICATOR AND OPTIONS BY RAYCOWYLIE



**NEW**  
**4650**  
 TOUCH SCREEN  
 10" OR 7"

RCI 10" screen with slew, work area definition and hook height options

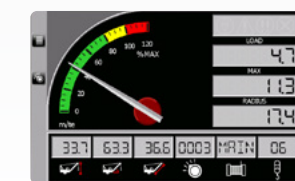
### DATA SCREEN



### ENGINE SCREEN



### RCI SCREEN



### DERRICKING BARGE SCREEN



Knuckle Boom Crane



Offshore Crane



Winch Systems



Wind Speed Systems



Work Area Definition



Camera Systems



Data-Loggers



Hook Height



Lubrication



Telemetry



Mud System



Engineering



Spares



# A COMPLETE OFFSHORE RCI PRODUCT LINE

The RCI is specifically designed to meet the harsh offshore environment. It is suitable to use in hazardous areas where zone 1, or zone 2 protection is required. With its integrated systems, operators cannot miss any important information since all parameters are shown at a glance. In addition to these 3 packages, the RaycoWylie RCI can also be customized according to customers' specific requirements such as oil pressure, RPM, hours and much more.

Do you need a specific parameter to appear on the display? Based on its extensive expertise, RaycoWylie can provide a custom solution for your most demanding requirements.



## TOP OF THE LINE

### SAFE CAB, HAZARDOUS BOOM

#### i 4510



- 10.4" High luminance, 800 x 600 pixels
- Size: 10.4" (4/3 ratio)
- IP Rating: IP67
- 8 contextual key
- Operating Temperature: -20°C to 70°C (-4°F to 158°F)
- Extended Temperature: -40°C to 70°C (-40°F to 158°F)
- Supply Voltage: 24 VDC
- Full colour

## STANDARD

#### i 4507



- 7" High luminance, 800 x 480 pixels
- Size: 7" (16/9 ratio)
- IP Rating: IP67
- 8 contextual key
- Operating Temperature: -20°C to 70°C (-4°F to 158°F)
- Extended Temperature: -40°C to 70°C (-40°F to 158°F)
- Supply Voltage: 24 VDC
- Full colour

## ECONOMIC

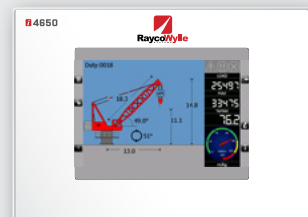
#### i 4300



- 4.3" High luminance, 480 x 272 pixels
- Size: 4.3" (16/9 ratio)
- IP Rating: IP67
- 8 contextual key
- Operating Temperature: -20°C to 70°C (-4°F to 158°F)
- Extended Temperature: -40°C to 70°C (-40°F to 158°F)
- Supply Voltage: 24 VDC

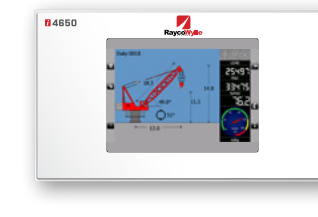
### HAZARDOUS CAD, HAZARDOUS BOOM

#### i 4650 TOUCH SCREEN



- 10" touch screen full colour panel mount display (optional enclosure), 800 x 600 pixels
- Size: 10.4" (4/3 ratio)
- IP rating: IP66 / IP54 (front/back) (IP65 back when mounted in optional enclosure)
- Operating Temperature: -40°C to 65°C (-40°C to 149°C)
- Supply voltage: 24 VDC (Ex e)
- Certification: IECEx (alternative certification available upon request)

#### i 4650 TOUCH SCREEN



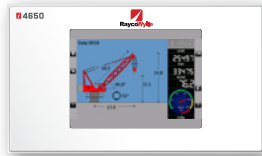
- 7" touch screen full colour panel mount display (optional enclosure, 800 x 480 pixels)
- Size: 7" (15/9 ratio)
- IP rating: IP66 / IP54 (front/back) (IP65 back when mounted in optional enclosure)
- Operating Temperature: -40°C to 65°C (-40°C to 149°C)
- Supply voltage: 24 VDC (Ex e)
- Certification: IECEx (alternative certification available upon request)

### FEATURES

- Load
- Angle
- Relay controller
- Over hoist input (ATB)
- Boom tip wind speed and direction
- XY chassis angle
- Slew encoder
- Camera inputs (i4510)
- Data logger
- Virtual wall range limiting
- Sea state
- Hook height monitoring
- Rope pay-out monitoring
- CAN bus wireless gateway (868Mhz or 915Mhz)
- Engine data monitoring
- Hydraulic systems data monitoring

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**HOOK HEIGHT INDICATOR**



**CPU**



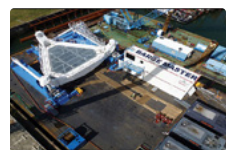
**ANTI-TWO-BLOCKS**



**DYNAMOMETERS**



**TELEMETRY REPORTING (RAYCONNECT)**



**CAMERA**



**LOAD LINK**



**LUBRICATION SYSTEM**



**ANGLE SENSOR**



**LOAD PINS**



**SLEW SENSOR**



**WIND SPEED AND DIRECTION SENSOR**



## SEA HERCULES

At Sea Hercules we have been installing the RaycoWylie Rated Capacity Indicator on our new built offshore cranes since 1996.

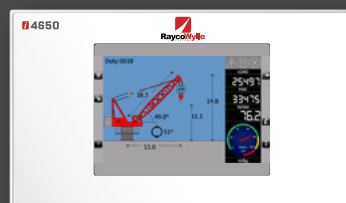
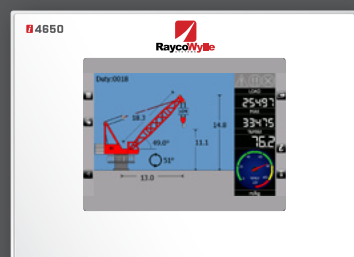
The RaycoWylie system was installed on the Baker Marine cranes models BMC 900 / BMC 1600 /BMC 2250 and are installed now on our latest models SH2000-S / SH2000-SE / SH2000-LW / SH2000-M.

Sea Hercules and RaycoWylie has developed a great partnership over the last 25 years, providing us with a very reliable product and an around-the-clock service in the region.

We treasure this partnership and want it to continue for the next decade.

**Chavan NK**  
General Manager Products

**NEW**  
**i 4650**  
TOUCH SCREEN  
10" OR 7"



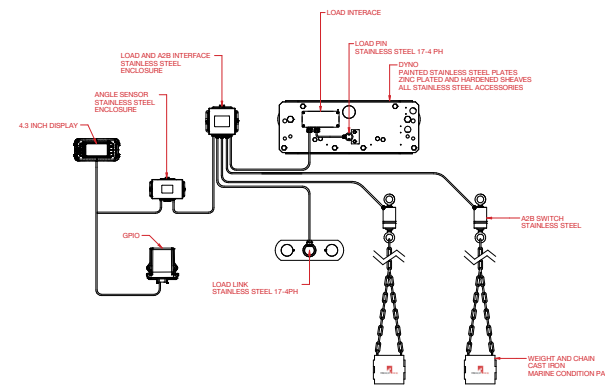
# OFFSHORE CRANES RCI COMPARATIVE CHART



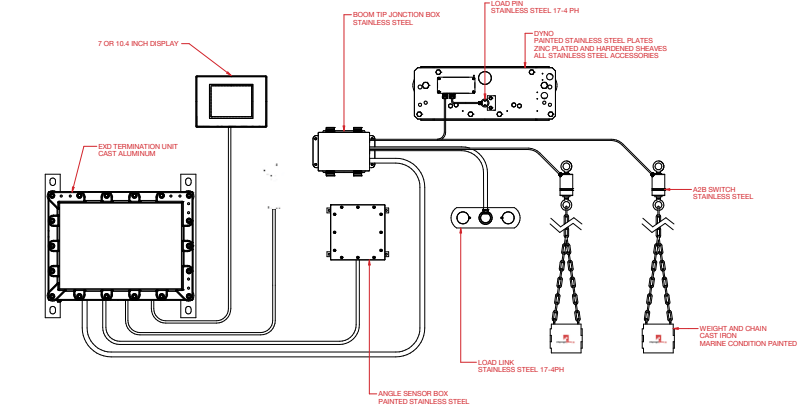
MODELS	i 4650	i 4650	i 4510	i 4507	i 4300
DISPLAY SCREEN SIZE	10"	7"	10"	7"	4.3"
<b>INFORMATION DISPLAYED</b>					
Hazardous Zone	•	•			
Safe Cab			•	•	•
Load on hook	•	•	•	•	•
Safe working load	•	•	•	•	•
% of safe working load	•	•	•	•	•
Angle	•	•	•	•	•
Length	•	•	•	•	•
Radius	•	•	•	•	•
Anti-two-block	•	•	•	•	•
Duty number	•	•	•	•	•
Parts of line	•	•	•	•	•
Hoist selection	•	•	•	•	•
Jib configuration	•	•	•	•	•
Graphical display	•	•	•	•	•
Bar graph	•	•	•	•	•
Pop-up window selection	•	•	•	•	•
Audible and visual alarms	•	•	•	•	•
Compatibility (Sensors)	•	•	•	•	•
Self-diagnostic	•	•	•	•	•
Limit alarms	•	•	•	•	•
Boom height	•	•	•	•	•
Slew indication	•	•	•	•	•
<b>DISPLAY SEALING</b> IP (International Protection)	<b>IP66/IP54</b>	<b>IP66/IP54</b>	<b>IP67</b>	<b>IP67</b>	<b>IP67</b>
<b>TERMINATION UNIT SEALING</b> IP (International Protection)	<b>IP64</b>	<b>IP64</b>	<b>IP64</b>	<b>IP64</b>	<b>IP64</b>
<b>OPTIONS AVAILABLE</b>					
Hazardous Zone			•	•	
Lock-out system	•	•	•	•	•
Wind Speed indication	•	•	•	•	•
Data logger	•	•	•	•	•
Data transmission	•	•	•	•	•
Reporting	•	•	•	•	•
Hook height indication	•	•	•	•	•
Work area definition	•	•	•	•	•
Camera Boom tip	•	•	•	•	•
Camera Hoist view	•	•	•	•	•
Lubricant System	•	•	•	•	•
Radar Blind Spot Monitoring	•	•	•	•	•

# OFFSHORE CONFIGURATION

## SAFE ZONE



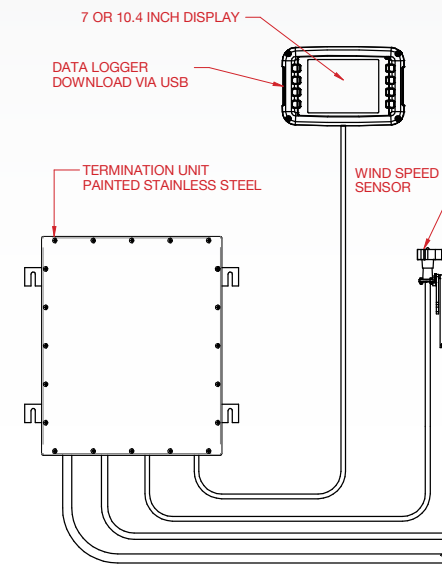
## HAZARDOUS ZONE



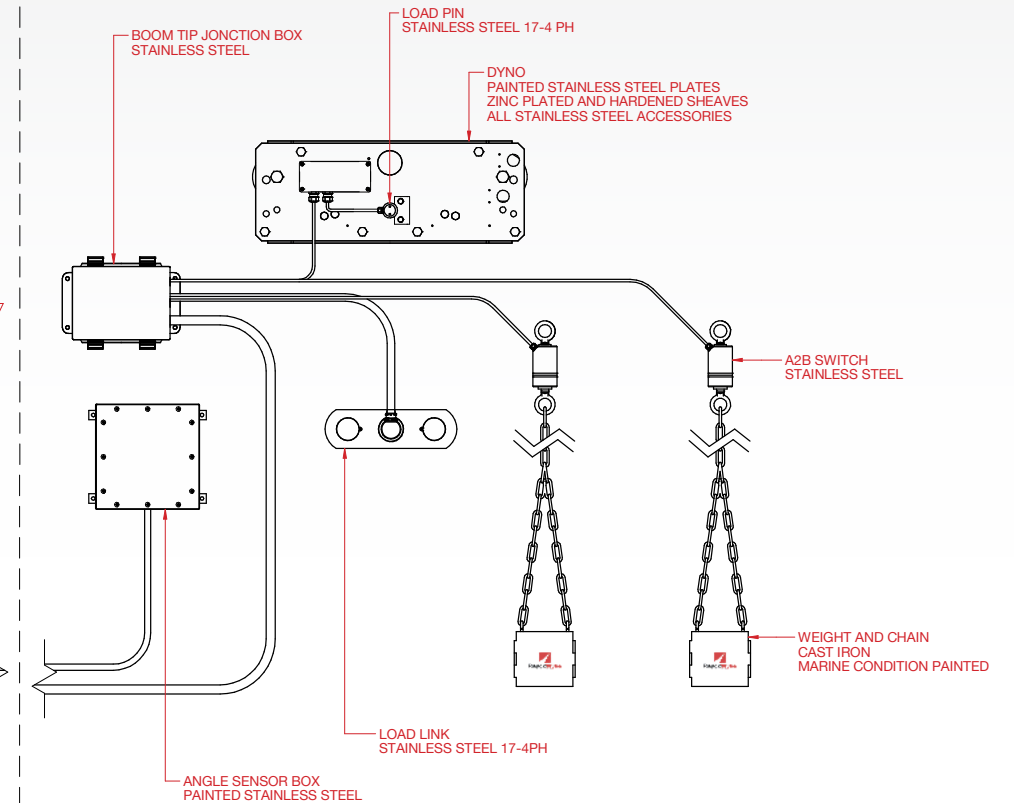
## SAFE ZONE / HAZARDOUS ZONE TYPICAL OFFSHORE CONFIGURATION



## SAFE ZONE CAB



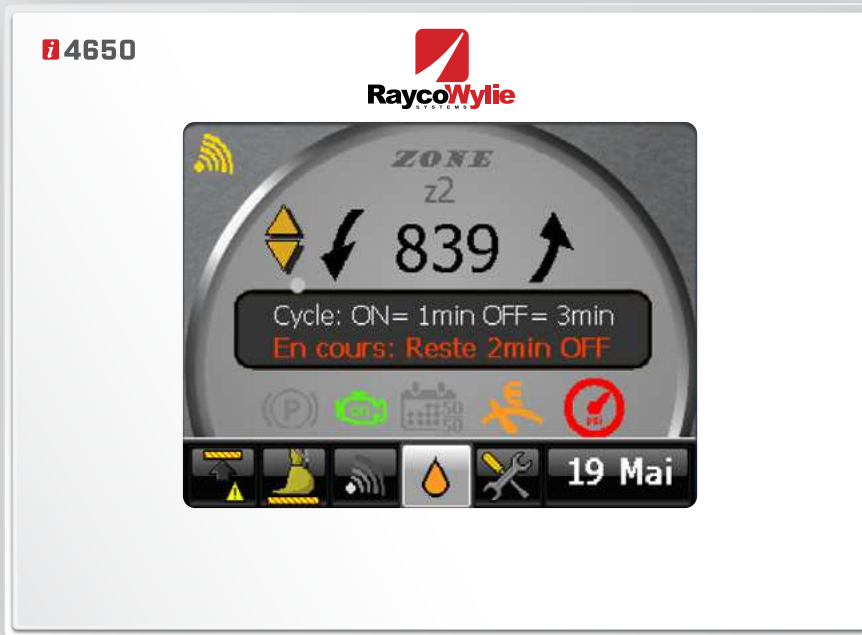
## HAZARDOUS ZONE BOOM



# OPTIONS: AUTOMATIC LUBRICATION SYSTEM INTEGRATED IN RAYCO PRODUCTS OR STAND ALONE



# OPTIONS: CAMERA BOOM TIP, HOOK VIEW, HOIST AND REAR VIEW



## i 4650

Equipment operating in ports and terminals as well as platforms and barges, are subject to extremely challenging environments. The RaycoWylie automated Lubrication System will prevent expensive repairs, and keep your equipment fully operational. It will enhance the safe operation of your equipment by keeping your greasable components in excellent condition at all times, resulting in safe and reliable equipment performance.



## i 4507

Cameras are used for many different reasons. RaycoWylie has developed the i4500 and the new i4650 systems with multiple camera inputs. This reduces the amount of cab space taken up by multiple displays and allows the operator to view the load and critical data on the same screen. RaycoWylie systems are compatible with numerous camera system manufacturers. Whether you're looking for a hook view, rear view, or winch view camera RaycoWylie are ready to help.



## LUBRICATION PUMP



## i 4510



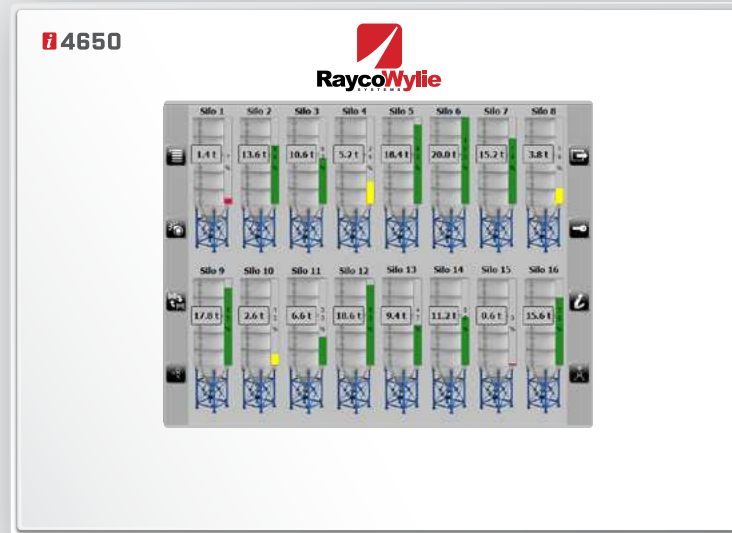
Various camera options offered with the i4500 and i4650



# MUD SYSTEMS



## i 4650



# WEIGHING AND TOTALIZING THE MUD SYSTEM ON OFFSHORE PLATFORMS

## FEATURES:

- RaycoWylie central unit i4510 with 10" screen with a maximum of 24 tanks;
- Weight in each tank and total of all tanks or total by group of tanks;
- Load sensors adapted to tanks including for hazardous zone location;
- Real time reporting;

## BENEFITS:

- Knowing the weight in each tank will assist in calculating the total volume needed for the well;
- Mud weight, volume and density all combine to allow the mud engineer to control the well;
- This additional information is beneficial in making calculations with regards to well control and cementing jobs;
- Volumes of fluid in tanks will have different weights and the individual tank weight can be totalized with all tanks to give a total fluid weight;
- When vessels are transporting fluids or material in below deck, the tank unloading will impact ballast needs to keep the vessel from listing;
- Weights of the tanks will allow sequential unloading from the tanks to keep the vessel in proper position thru ballasting.

# RAYCOconnect

## REMOTE ACCESS SERVICE FEATURES



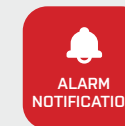
AVAILABLE ON ALL DEVICES

**RAYCOconnect** provides relevant and accurate information to optimize maintenance and operation of your equipment. **RAYCOconnect's** customizable dashboard presents critical information to different types of organisations and users to facilitate management and efficiency.



**RAYCOconnect** event recorder provides a simple overview of the crane lift usage. Allowing you to quickly identify if the crane is overused, avoiding future unnecessary maintenance costs.

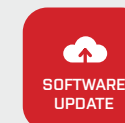
- Crane running hours
- Safe working load
- Load
- Angle
- Radius
- Digital I/O
- Extension
- Over hoist input (ATB)
- Boom tip wind speed
- XY chassis angle
- Slew encoder
- Data logger
- Range limiting data
- Outrigger position
- Hook height
- Rope payout



- Increase safety
- Reduce downtime
- Schedule or event based maintenance notifications
- Safety critical alarm notifications



- Continuous maintenance and web application upgrades
- Remote software updates
- Upgrade loadcharts and calibrations



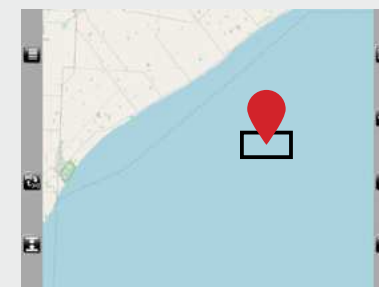
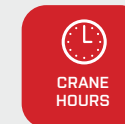
- Increase safety
- Reduce downtime
- Schedule or event based maintenance notifications
- Safety critical alarm notifications



Engineering Data is critical for the crane manufacturer for long-term product improvement; It also provides sensitive information for long term reliability, analysis and preventive maintenance planning.

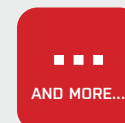


- Data logger and crane hours
- Time stamp event
- Crane power on time
- Lift information
- A2B, overload and by pass record



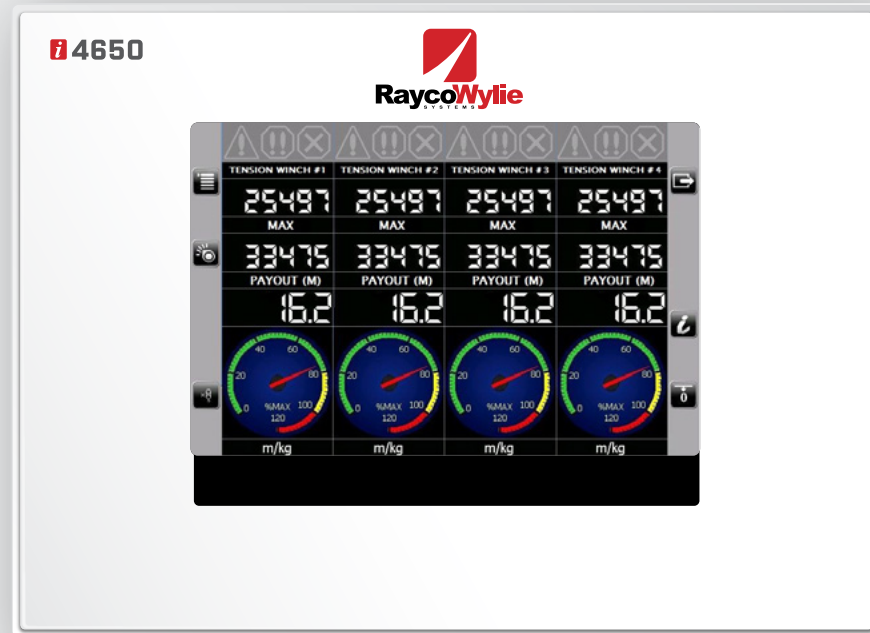
- Remote Diagnostics
- Improved Response Time and Service Cost Reduction

System information (software, OS, texts load chart, S/N)	
Software:	RaycoWyl
LPC:	3.08
Texts:	SC145006v0006
File:	190218 21LC1050
Chart:	SC4R DC8R
Detected CAN addresses on canbus network 1:	B0, E1, D2, D4, D3, D5, A0, A1, 91, 00
Detected CAN addresses on canbus network 2:	
4507 S/N:	18-50-414
Crane S/N:	11111



- Crane information and engine data
- Remote derating
- User management can be done by the OEM or fleet owner
- Branded login page and web application
- API available for fleet management and other management software (CRM, ERP)

# MOORING LINE & GPS SYSTEM



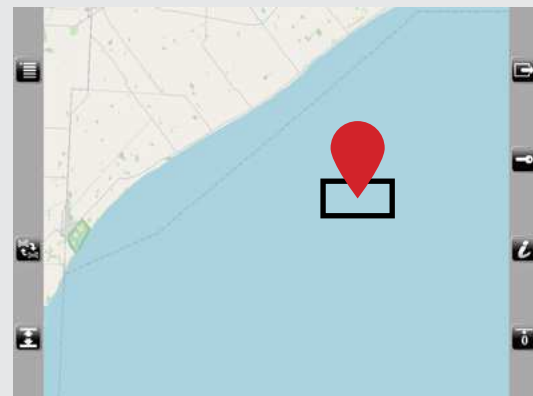
## NEW i4650 TOUCH SCREEN 10" OR 7"

Ex: Four winches screen

There is a need to maintain vessel position when performing subsea inspection and maintenance and when making repairs to pipelines, cables and subsea architecture. When deploying anchors in preparation for subsea activities or topside construction, vessel position keeping is critical to the successful completion of the work scope. The RaycoWylie Mooring line system not only monitors line pull, wire rope speed, length of wire rope and payout and take up, but the internal GPS system provides the vessel with its exact location to assist and maintain accurate station keeping.

- Mooring line systems for anchors with local displays and centralized indication of load, speed, pay in and pay out;
- May have up to 24 winches;
- Larger screen also available;
- Mix screens with winches, alarms and GPS location also available.

### GPS LOCATION SCREEN



### 8 WINCHES SCREEN



# DERRICKING BARGE



## i4510

Ex: 10" screen with wind speed, work area definition and hook height options

Barge-mounted cranes come in a variety of shapes and sizes. Our systems have been designed with the flexibility to suit every application. From the smallest single hoist cranes to multi hoist heavy lift barges cranes, the i4500 and the new i4650 have the capability to suit every application and reach customers' expectations. Using the latest in sensor technology and CAN bus communication, the systems can be quickly installed and calibrated.

Supporting numerous sensors, the Rayco systems can be used to monitor load, safe working load, radii, boom angle, over hoist conditions (anti-two-blocks), X/Y (list/trim angles),

camera inputs, data logging, wind speed, slew position, virtual wall range limiting, hook height and hoist rope pay-out and pay-in monitoring to mention a few. We have also added the lubrication and the radar proximity options.

RaycoWylie also have the ability to customize systems to your exact requirements. With a team of dedicated and experienced personnel, we are always happy to work to find the perfect solution for your crane.

### 7" SCREEN



### 10" ALTERNATIVE SCREEN





# W 880/890 LOAD LINKS & SHACKLES



## W 880 LOAD LINKS

At RaycoWylie we have a variety of load links. Both wired and wireless models are available in a range of capacities from 6.5te to 500te. All load links are manufactured from high grade aluminium and designed for ease of installation and transportation. Heavy duty transport cases are available for all load links.



## W 880 HD LOAD SHACKLES

RaycoWylie now offers a variety of heavy duty load shackles. Both wired and wireless models are available in a range of capacities from 25te to 2000te. Load shackle pins are constructed from 17-4 stainless steel, for strength and reliability. Heavy duty transport cases are available for shackles up to 55.0te capacity.



## W 890 LOAD SHACKLES

RaycoWylie offers the W890 range of load shackles, ranging in capacity from 6.5te to 35.0te. The load pins are manufactured from 17-4 stainless steel for strength and reliability, these shackles should be used with the appropriate bobbin to ensure the load is directly applied to the centre of the load pin, therefore giving the most accurate results. All load shackles are available with heavy duty transport cases.

# SPARES



### DISPLAY (SAFE CAB)

- Size: 4.3" (16/9 ratio)/ 7" (16/9 ratio)/ 10.4" (4/3 ratio) IP Rating: IP67
- Operating Temperature: -20°C to 70°C
- Supply Voltage: 24 VDC
- Certification: BS EN 13852-1 / BS EN 13852-2



### EX DISPLAY (ZONE 1 AND 2)

- Stah/ ET208 7" touch screen full co/our panel mount display (optional enclosure) Size: 7" (15/9 ratio)
- IP rating: IP66 / IP54 (front/back) (IP65 back when mounted in optional enclosure)
- Operating Temperature: -40°C to 65°C
- Supply voltage: 24 VDC (Ex e) 85-265 VAC, 48-62 Hz (Ex e)
- Certification: IECEx (alternative certification available upon request)



### TERMINATION UNIT (SAFE CAB)

- Material: Stainless Steel (Powder Coat Black Paint) Size: 460mm x 440mm x 180mm
- Supply voltage: 24 VDC (85-264 VAC, 47-63 Hz)



### EX TERMINATION UNIT (ZONE 1 AND 2)

- Material: Cast Aluminium
- Size: 500mm x 285mm x 4 76mm
- Supply voltage: 24 VDC
- Certification: IECEx (alternative certification available upon request)



### JUNCTION BOX

- Material: Stainless Steel
- Various size available



### ANGLE SENSOR

- Material: Stainless Steel (Powder Coat Black Paint) Size: 216mm x 219mm x 162,5mm
- Operating temperature: -40°C to 70°C
- Excitation voltage: 5 VDC



### CABLE GLANDS: TYPE M16

- Material: Nickel Plated Brass
- Contact sleeve: Nickel Plated Brass
- Operating temperature: From -40°C to 100°C
- Protection: IP68



### CABLE GLANDS: TYPE M20/M25

- Material: Brass
- Operating temperature: From -60°C to 80°C
- Protection: IP68
- Reference: IECEx



### WIND SPEED & DIRECTION

- Wind speed and direction for harsh environment
- Material: Stainless steel



### LOAD LINK

- Material: Stainless Steel 17-4PH
- Non-linearity and hysteresis combined: < ±0,2% of full scale
- Operating temperature: From -20°C to 80°C
- Output signal: 1,3 mVN typical full scale
- Excitation voltage: 5 VDC
- Protection: IP67



### A2B SWITCH (OVER HOIST LIMIT SWITCH)

- Material (switch): Stainless Steel
- Contact operation: Snap action
- Contact configuration: 1 N.O./1 N.C.
- Contact material: Silver



### LOAD PINS

- Material: Heat-Treated Stainless Steel 17-4PH
- Non-linearity and hysteresis combined: < ±0,2% of full scale
- Operating temperature: From -20°C to 80°C
- Output signal: 1,3 mVN typical full scale
- Excitation voltage: 5 VDC
- Protection: IP67



### DYNAMOMETERS

- Material: Stainless steel/zinc plated steel
- Non-linearity and hysteresis combined: < ± 0,2% of full scale
- Operating temperature: From -20°C to 80°C
- Output signal: 1,3 mVN typical full scale
- Excitation voltage: 5 VDC

# RADAR / PROXIMITY WARNING

The Radar Blind Spot monitoring is a new option of the i4500 and the i4650. It is also available as a stand alone application with the i4000.

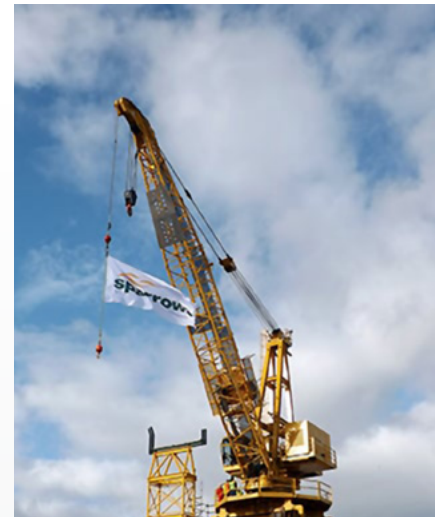
## i 4510



## i 4000



## RECOMMENDATION LETTER FROM SPARROWS GROUP



Dear potential client,

It is our pleasure to recommend RaycoWylie as an outstanding supplier.

The RaycoWylie and Sparrows Teams work closely together to meet the needs of our clients.

Whether providing training or offshore Crane Monitoring Systems, their customer service and response time is to top notch which allows us the opportunity to provide greater service to our clients in North America.

Sparrows Group Management

# ENGINEERING EXCELLENCE



Our objective is to be the accepted number 1 supplier on the market.

## APPLICATION ENGINEERING

Whether a crane has a 1 tonne or a 5,000 tonne capacity or more, RaycoWylie engineers have the technical expertise and commitment to deliver the right crane instrumentation for your specific operational requirements. Their extensive experience, which is renowned and respected worldwide, enables them to produce customised equipments to suit unique applications.

## NEW PRODUCT DEVELOPMENT

RaycoWylie engineers are continuously using the latest technologies to ensure that their products are the most versatile, reliable and cost effective available in the world marketplace.

## TESTING

Every RaycoWylie product has to endure a complete and thorough test program before it is despatched.

## FIELD TRIALS

Every new product or addition is thoroughly tested through exhaustive field trials before it is released for sale to the customers.

## GLOBAL CONTACTS



### 1. CANADA

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F: +1 418 266 6610

**All Enquiries**  
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East Sussex  
TN38 9BA  
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F: +44 1424 433 760

**All Enquiries**  
wylie@raycowylie.com

### 3. UNITED STATES

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Hagerstown  
MD 21742  
T: 1 888 252 1957

**All Enquiries**  
rayco@raycowylie.com

### 4. EGYPT

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