No more Tag lines

ROBORIGGER

Making lifting safer.

Wireless load control
and lifting data collection software.

What is Roborigger?

Our technology reduces cost and improves the safety and efficiency of your lifting operations.

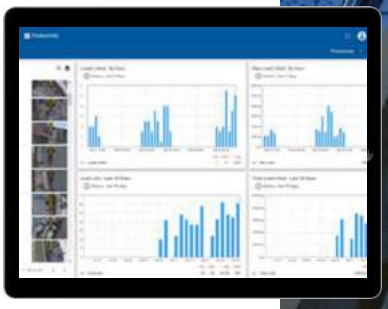
Roborigger is a remote-controlled robotic device connected to the end of a crane's wire rope by hook. Our rotational technology controls a load's orientation without the risk of personnel being in the vicinity of the landing zone.

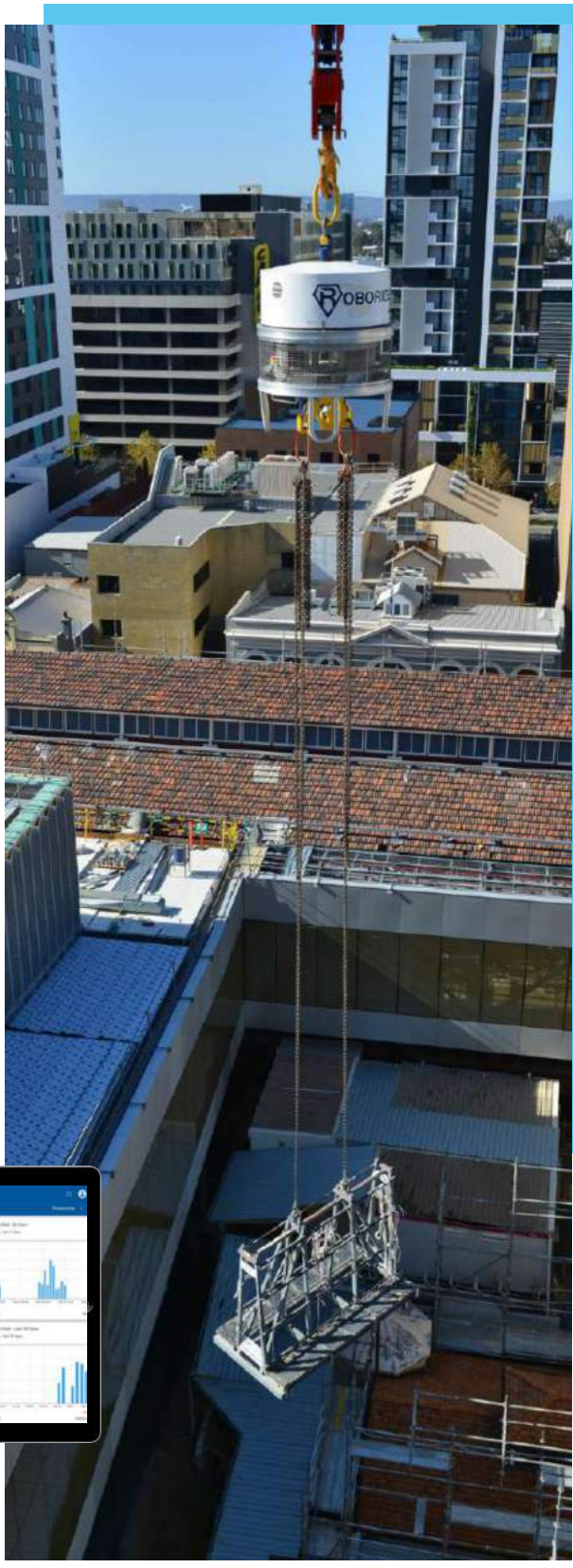
Roborigger rotates and holds loads in a desired orientation regardless of wind, meaning no taglines are needed to manage the spinning or the landing of a load.

The AR15 Roborigger units have a maximum working load of 15 tonne with a maximum weight of 850kg. These units are great for lighter loads in more frequent and consistent lift cycles.

The ARM1500-35 Roborigger units have a maximum working load of 35 tonne with a maximum weight of 1,860kg including lift frame and hook. These units are used for more difficult specific lifts.

Roborigger is also integrated with IoT software that collects lift data in real time and pushes instantly to the cloud based customer platform.



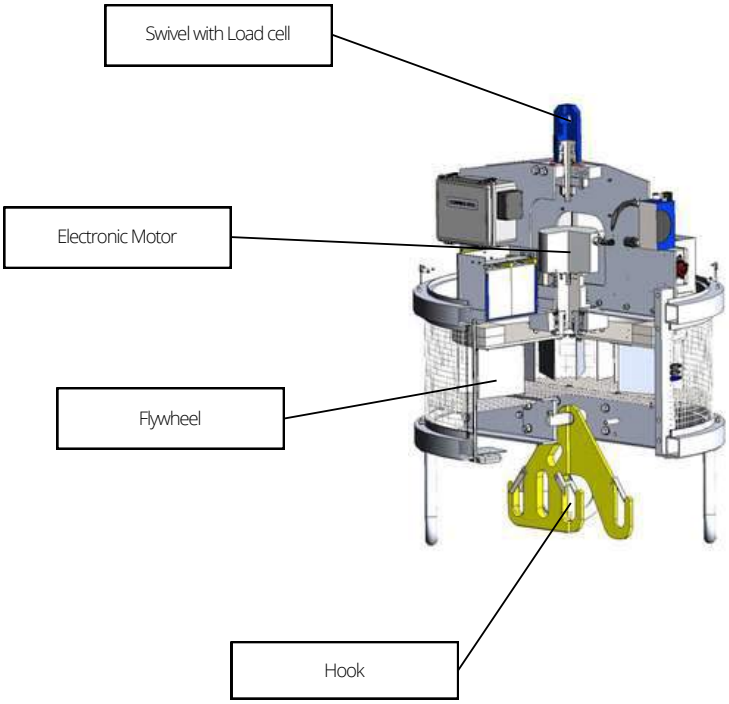


How it Works

Inside Roborigger

Roborigger rotates crane loads using inertial forces. The motor rotates flywheel clockwise. As a result, the frame, hook and the load are rotated anti-clockwise.

The control system has sensors which detect the heading of the load. When the button is pressed, the unit rotates at 10 degrees per second and when the button is released, the orientation of the load is maintained in current position.



Onboard Load Cell

The weight of a load can be viewed on the screen remote control. The weight of every lift is logged and all overloads trigger an overload event which is logged.

The load is checked before the hook is actuated and onboard systems will record the load spectrum (no. of lifts and loads lifted) for use in determining maintenance, retesting, and service life.)

Value of Roborigger

Save up to $960,000 a year in cost reductions.

How Does Roborigger Help?

Roborigger greatly extends the operating window of lifts by reducing the negative impacts of windage. It also increases speed between lifts by allowing the dogman to orient the load whilst in transit - Ultimately reducing operational down time and increasing the efficiency of lifting cycles.

Improve Lifting Efficiency

The cost of both loading bay crew and crane crew, as well as the hire of the crane, can usually range from $50,000 to $75,000 a month. Clients who adopt Roborigger's remote orientation device have seen lifting efficieny **increase by 15%**. Resulting in a **cost reduction of $7.5k a month**.

Reduce Operational Down time

The loss of operation time due to a crane accident can cost as much as **$100K**. If a project can avoid one less incident a year, then Roborigger has saved you money.

Accelerate Construction

Large construction projects incur a daily cost of site personnel and equipment between **$25,000** and **$100,000** per day, and a project typically lasts between 1 to 2 years (300 to 600 days).

Where logistics and craneage efficiency is improved, projects can accelerate the construction period by **1%** improvement, a saving between **$75,000** and **$300,000** per year.

Use Data to Make Improvements

Use Roborigger IoT platform to measure your operational metrics with accuracy and implement changes and improvements. The IoT lifting data can be used to identify pain points and assist in resolution of claims. Historical data can be used for planning future operations. These benefits alone can easily amount to a 1% efficiency improvement. A saving between **$75,000** and **$300,000** per year.

Use Cases

SUMITOMO MITSUI CONSTRUCTION CO.,LTD.

Worlds First Autonomous Crane

Sumitomo Mitsui Construction (SMCC) is utilising Roborigger's remote load control technology in the development of the world's first autonomous crane.

The autonomous crane has been successfully tested at the Seiseki Sakuragaoka 33 floor construction site in Tokyo.

MULTIPLEX

Installing Window Panels

Installing window panels under the overhanging awning Where the crane could not normally reach and tag lines cannot be used.

Roborigger was used in conjunction with counterweight balancer beam. Any o rientation of the counter weight balancer beam was controlled by Roborigger via remote.

LAING O'ROURKE

Sydney Central Station Steelwork Erection

Riggers were required on the ground beneath load to hold tag lines during installation of the steelwork.

Roborigger eliminated the need for a rigger on the ground to control the load, allowing riggers to be in the elevated work platforms (EWP) ready to install the steelwork.

森記建築有限公司 SUM KEE CONSTRUCTION LIMITED

Roborigger in Hong Kong

The Boardwalk underneath Island Eastern Corridor (IEC) Joint Venture has successfully implemented Roborigger lifting orientation technology on a construction project in Hong Kong.

Sum Kee has been supporting Roborigger's introduction into Hong Kong, and this project is the perfect pilot due to the extensive lifting and marine operations under windy conditions.

Roborigger AR15

The ROBORIGGER AR15 is a load controlling system with a 15t WLL capacity. Roboriggers add value to your project by increasing lifting efficiency of the crane and its team an average of 15%. This is achieved by allowing orientation to be done whilst the load is in transit, there being no need to attach and remove tag lines, and having the ability to work efficiently at higher wind speeds. Erection of steelwork at height can be done using one or two fewer personnel as you don't need personnel on tag lines to do the orientation. Roborigger has a payback greater than three times its cost.

Using Roborigger allows orienting and landing lifted loads to be undertaken without tag lines and the need for people to be in the vicinity of the load. It also prevents loads from spinning and hitting structure which is a major cause of dropped objects. The safety benefits are significant.

The AR15 has sufficient capacity to control the orientation of a 20ft container in winds of 15kn (27km/hr 8m/sec) gusting to 20kn (36km/hr 10m/sec). The ability to control the load depends on the mass moment of inertia of the load, its windage and shape. If loads are compact and have relatively low windage (e.g. heavy mechanical equipment less than 6m long) the mass can be large and the allowable wind speed can be higher whereas if the loads are very long and have high windage (e.g. a crane boom or wind turbine blade), the allowable mass and wind speed will be less.

Each unit comes with the ability to use 2 remote controls to allow handover between 2 dogmen. This allows the team at street level to connect the load and set its orientation and then hand over to the team at the disconnection end. The load remains under control during the hand over process.

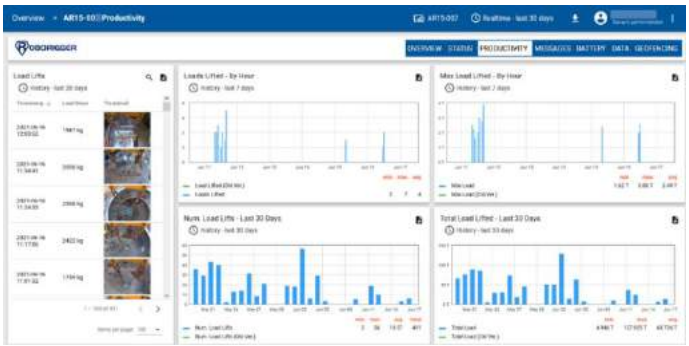
Roboriggers are designed for an ultimate capacity of 5xWLL and are load tested to 2xWLL.

The AR15 includes a trihook that can carry 15t on the centre hook or 15t shared on the outside hooks.

ROBORIGGER includes a video camera and load cell and is fully internet connected by Wi-Fi and 3g/4g so that all lifts are recorded on the internet database complete with date, time, location, weight and a high resolution image. Load ID can also be recorded. This gives the user the ability to track all loads lifted and to analyse performance and productivity.

AR15 unit

Remote control has weight readout



Data is captured and saved to the internet database

KEY FEATURES:

- Integrated load cell
- Integrated IP camera capable of providing video feed and still pictures of load
- 3g/4g modem to provide internet connectivity
- Wi-Fi for transmission of video for use as crane camera or for remote monitoring
- Wireless remote using off the shelf 2.4 GHz or 433MHz crane controller
- 12 hour+ battery pack. Optional 24x7
- Onboard battery charger: input AC240V 10A single phase.
- Remote monitoring using ROBORIGGER IoT website

SPECIFICATIONS: WLL: 15 t

PROOF LOADING: 30 t

Module Size: 1.4 (diam) x 2.03 (height)

Operating temp: 0 to +55C

Weight: 1,050 kg

Design : AS1418 class U3 loading Q3

Fatigue life 100,000 cycles spectrum Kp=1

Design approval - Lloyds Register. CE approved

Roborigger ARM1500-35

The Roborigger ARM1500-35 is a load controlling system based on the ARM1500 load control module fitted with a 35t WLL spreader and hook system. Roboriggers add value to your project by increasing the lifting efficiency of the crane and its team by an average of 15%. This is achieved by allowing orientation to be done whilst the load is in transit, there being no need to attach and remove tag lines, and having the ability to work efficiently at higher wind speeds. Erection of steelwork at height can be done using one or two fewer personnel as you don't need personnel on tag lines to do the orientation and the structure can be lifted into its final position under wireless control of the personnel making up the connection. Roborigger has a payback greater than three times its cost.

Using Roborigger allows orienting and landing lifted loads to be undertaken without tag lines and the need for people to be in the vicinity of the load. It also prevents loads from spinning and hitting structures which is a major cause of dropped objects. The safety benefits are significant.

The ARM1500 module has sufficient capacity to control the orientation of a 40ft container in winds of 15kn (27km/hr, 8m/sec) gusting to 20kn (36km/hr, 10m/sec). The ability to control the load depends on the mass moment of inertia of the load, its windage and shape.

The ARM1500-35 includes a lower support frame which can be left attached when in operation to allow easy set down or it can be removed for operation and the unit can be landed on the frame after use. For 24x7 operation, we offer an optional battery pack in this frame and by using 2 battery pack frames that can be swapped in a few minutes, operations can continue around the clock.

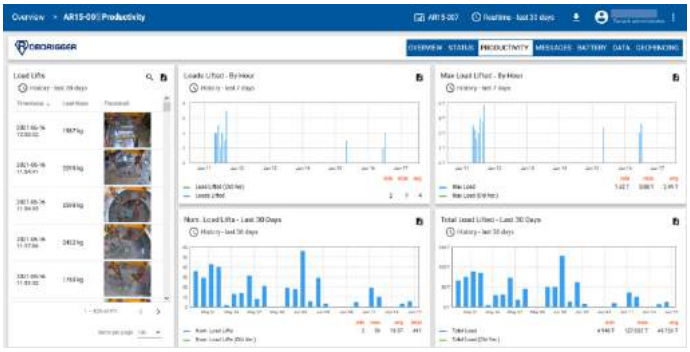
The ARM1500-35 includes a bihook that can carry 35t on one hook or shared on both hooks. It includes our lockable latch to provide peace of mind that the sling will stay on the hook.

ROBORIGGER includes a video camera and load cell and is fully internet connected by Wi-Fi and 3g/4g so that all lifts are recorded on the internet database complete with date, time, location, weight and a high-resolution image. Load ID can also be recorded. This gives the user the ability to track all loads lifted and to analyse performance and productivity.

LIFTING CONFIGURATION OPTIONS

With lower frame

Operation without lower frame



Data is captured and saved to the internet database

KEY FEATURES:

- Integrated load cell
- Integrated IP camera capable of providing video feed and still pictures of load
- 3g/4g modem to provide internet connectivity
- Wi-Fi for transmission of video for use as crane camera or for remote monitoring
- Wireless remote using off the shelf 2.4 GHz or 433MHz crane controller
- 12 hour+ battery pack. Optional 24x7
- Onboard battery charger: input AC240V 15A single phase.
- Remote monitoring using ROBORIGGER IoT website

SPECIFICATIONS:

WLL: 35 t (lift frame capacity)

PROOF LOADING: 70 t

Module Size: 1.57 (W) x 1.76 (W) x 2.15m (H)

Operating temp: 0 to +55C

Weight: module 1,080 kg (without lift frame)

Weight: 2,560 kg including lift frame

AS1418 class U3 loading Q3

Fatigue life 100,000 cycles spectrum Kp=1

Design approval - Lloyds register. CE approved.

Roborigger ARM1500-35 - OPTIONAL FEATURES

EXTERNAL BATTERY PACK FOR 24x7 OPERATION

For 24x7 operation, the battery pack can be located in the lower frame. By using 2 battery pack frames that can be swapped in a few minutes, operations can continue around the clock, one charging whilst the other is working.

GO TO MODE AND FOOT PEDAL CONTROL

GO TO mode allows 2 pre-set orientations A and B to be saved. A single button press then re-orientates the load. This requires the optional 10 button remote control. A foot pedal control can be provided to allow the operation to be controlled by the crane operator. This is ideal for repetitive operations such as loading a ship.

50T WORKING LOAD LIMIT (WLL) UPGRADE

The 35t unit can be upgraded to 50t unit by adding bolt on extensions to the upper spreader and a dedicated lifting bridle. The 50t load can then be connected to the ends of the upper spreader. The unit still retains its 35t capacity using the swivel and bihook.

Roborigger ARM1500-50

The Roborigger ARM1500-50 is a load controlling system based on the ARM1500 control module fitted with a 50t WLL spreader. Using Roborigger gives the following advantages:

Do the work faster. Orientation is done whilst the load is in transit - no need to attach and remove tag lines.
Do the work with less people. Erection can be done using one or two fewer personnel. You don't need personnel on tag lines. The structure can be lifted into its final position under wireless control.
Allow work to continue in challenging conditions. The ability to work efficiently at higher wind speeds is greatly improved. Loads can be safely lifted where tag lines would get caught on wires or structure.
Greatly improved safety. Loads can be landed without the need for people to be in the vicinity. Loads are prevented from spinning and hitting structure - a major cause of dropped objects and costly damage.
Payback is greater than three times its cost. Roboriggers add value to your project by increasing the lifting efficiency of the crane and its team by an average of 15% on routine works. On challenging jobs, the cost benefits are much more significant.

The ARM1500 module has sufficient capacity to control the orientation of a 40ft container in winds of 15kn (27km/hr) gusting to 20kn (36km/hr). The ability to control the load depends on the mass moment of inertia of the load and its windage.

The ARM1500 includes a lower support frame incorporating forklift pockets which can be left attached when in operation to allow easy set down or it can be removed for operation and the unit can be landed on the frame after use. For 24x7 operation, a battery pack can be included in this frame and by using 2 battery pack frames that can be swapped in a few minutes, operations can continue around the clock. It is also possible to operate Roborigger continuously by providing a charging supply of 1.5 to 2.5kW through the 110VAC to 250VAC charging port. This can come from a generator below (e.g. on a vacuum lift or magnetic lift spreader) or from a cable supply via the crane boom.

ROBORIGGER includes a video camera and load cell and is internet connected by Wi-Fi and 3g/4g so that all lifts are recorded on the internet database complete with date, time, location, weight and a high-resolution image. Load ID can also be recorded. This gives the user the ability to track all loads lifted and to analyse performance and productivity. The IOT is also used for online condition monitoring.

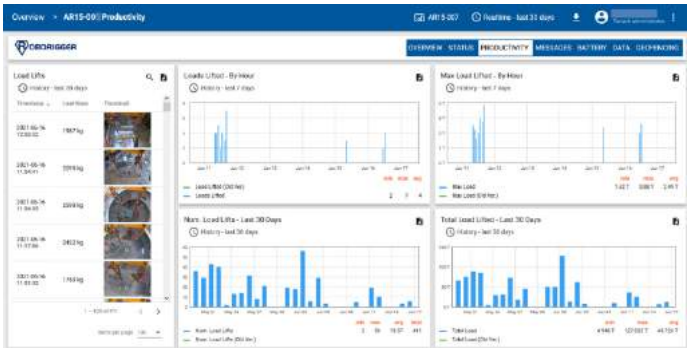
LIFTING CONFIGURATION OPTIONS

Stand-alone

Removable transport base

Spreader & hook mode

Spreader mode



Data is captured and saved to the internet database

KEY FEATURES:

- Integrated load cell
- Integrated IP camera capable of providing video feed and still pictures of load
- 3g/4g modem to provide internet connectivity
- Wi-Fi for transmission of video for use as crane camera or for remote monitoring
- Wireless remote using off the shelf 2.4 GHz or 433MHz or 900MHz crane controller
- 12 hour+ battery pack. Optional 24x7
- Onboard battery charger: input AC240V 15A single phase.
- Remote monitoring using ROBORIGGER IoT website

SPECIFICATIONS:

WLL: 50 t (lift spreader capacity)

PROOF LOADING: 75 t

Module Size: 1.57 (W) x 1.76 (W) x 2.15m (H)

Operating temp: 0 to +55C

Weight: module 1,080 kg (without lift frame)

Weight: 1,900 kg including lift frame

Designed to AS1418 class U3 loading Q3

Fatigue life 100,000 cycles spectrum Kp=1

Roborigger ARM1500 - MODULAR OPTIONS

ARM MODULE WITH LOW PROFILE BASE

KEY FEATURES:

- Stand-alone module that can be attached to a customer's spreader or a structure to provide orientation capability only
- 4 pins allow quick attach/release to structure or base
- Two units can be stacked to double the orientation capability

SPECIFICATIONS:

WLL: not applicable

Module Size: 1570 (W) x 1570 (W) x 1500 (H)

Weight: module 1,080 kg

ARM MODULE WITH CONTAINER FRAME

KEY FEATURES:

- Designed to work with TEC container spreaders
- Unit can be continuously charged from a generator, fed power from crane or it can use exchangeable battery packs for 24x7 operation

SPECIFICATIONS:

WLL: not applicable. Suitable for controlling 40ft containers up to 40t

Module Size: 1570 (W) x 1570 (W) x 1500 (H)

ARM MODULE WITH 50t WLL SPREADER AND HOOK

KEY FEATURES:

- Bolt on spreader allows loads below to be connected from the end of the spreader or connected to a bridle with a bihook
- Protection plate and sling support horns for easy stowing and connection of slings
- Can support sling angles ranging from vertical to 45 degrees
- Allows Roborigger to be above personnel and loads at all times and easy connection to hook.

SPECIFICATIONS:

WLL: 50 t (lift spreader capacity). Other capacities available on request

Weight: 1,900 kg

Dimensions: 1700 (H) x 1580 (W) x 2150 (W)

ARM MODULE WITH 50t SPREADER AND SLINGS TO CUSTOMER SPREADER OR LOAD

KEY FEATURES:

- Bolt on spreader allows loads below to be connected from the end of the spreader
- Protection plate and sling support horns for easy stowing and connection of slings
- Can also be supplied in configurations up to 150t capacity for loads that are of appropriate windage and inertia for ARM1500 module (e.g. vertical lifting of tubulars up to 6m diameter)

SPECIFICATIONS:

WLL: 50 t (lift spreader capacity). Other capacities available on request

Weight: 1,900 kg

Dimensions: 1700 (H) x 1580 (W) x 2150 (W)

ARM MODULE WITH 35t WLL SPREADER, SWIVEL AND ATTACHED HOOK

KEY FEATURES:

- Integrated spreader, swivel and bihook
- Can be used with base attached or removed
- Bihook suitable for loading all load on a single side for single leg lifts

SPECIFICATIONS:

WLL: 35 t

Weight: 2,600 kg

Dimensions: 1570 (W) x 1760 (W) x 2150 (H)

AF12 - FAN POWERED ORIENTATION CONTROL

AVAILABLE FROM Q423

The Roborigger AF12 is a load orientation controlling system that uses two lightweight fan modules. The fan modules are mounted on pallet sized bases that include forklift pockets for easy handling. They also have a lifting point at the top of the frame. The modules are self-contained and have a dedicated battery pack.

The fan modules are designed to be located on the structure to be lifted or the spreader, as far apart as reasonably practicable. They can be secured to the structure or spreader with cargo straps, load binders or other means. There are numerous holes, slots and lugs for different securement methods. After the lift is completed, the modules can be quickly removed and relocated on the next lift. The 2 modules are currently connected together by a single lightweight data cable. Future units will have wireless interconnect.

The AF12 has been designed to control the orientation of long and heavy items such as assembled crane jibs, bridge girders, smaller wind turbine blades etc. The ability to control the load depends on the mass moment of inertia of the load, its windage and shape. It is expected that the unit will be able to control the orientation of girders up to 50m long and 300t in weight in winds less than 5m per second. Open structures such as crane jibs will be controllable in significantly higher winds.

The AF12 is operated by a single remote control. ROBORIGGER is fully internet connected by 3g/4g so that all lifts are recorded on the internet database complete with date, time, location. If a load cell is available (RS485 input) or if an IP camera image is available, the weight and an image will also be captured and logged. Load ID can also be recorded. This gives the user the ability to track all loads lifted and to analyse performance and productivity.

KEY FEATURES:

- Wireless remote using 2.4 GHz or 433MHz crane controller
- 3g/4g modem to provide internet connectivity
- Remote monitoring using ROBORIGGER IoT website
- Optional load cell
- Optional IP camera capable of providing video feed and still pictures of load
- Can be attached to load or to spreader
- Multiple attachment points for simple attachment to structure or spreader

SPECIFICATIONS:

Module Size: 1.4 (W) x 1.0 (D) x 1.9m (H)

Operating temp: 0 to +50C

Weight: 350 kg each module

Charging: Standard 10A 240V cable. Charging takes approximately 6 hours

Duration: battery pack suitable for an estimated 30 lifts

Contact Us

HEAD OFFICE - Australia
49 Distinction Rd, Wangara WA 6065
+61 08 9488 4500
info@roborigger.com.au
roborigger.com.au

ROBORIGGER AGENTS

GERMANY/AUSTRIA/SWITZERLAND
Ludwig System GmvH & Co
+49 8651 7656 730
peter.ruf@ludwigsystem.com
ludwigsystem.com

NETHERLANDS/BELGIUM
Ludwig System GmvH & Co
+49 8651 7656 730
edwin.vanzitteren@ludwigsystem.com
ludwigsystem.com

SAUDI ARABIA/QATAR/EMIRATES
Rezayat Sparrow Arabian Crane Hire
+966 550 418 831
raymond.cron@rezayat.net
webtest.rezayat.net/rezayatlogistics

JAPAN
Joto-Lease Co
+81 356 243 701
si.taniwa@joto-lease.co.jp
joto-lease.co.jp

HONG KONG
Sum Kee Construction Ltd
+852 9739 5356 / 4610 2013
kenneth.ho@sumkee.com.hk
robert.dickson@sumkee.com.hk

USA/CANADA
Greenfield Products
+1 708 331 3115
jmeyers@greenfieldpi.com
greenfieldpi.com

Customer Testimonials

MULTIPLEX

"We've also been using [Roborigger] day to day for all our loads. It's really good to having that manoeuvrability to move it exactly which way you want it to go. You can orientate the load so that it doesn't swing out over public space and you can keep it so that it's in line within the boundary of site."

Lachlan McDonald, Site Engineer, WA Museum

SHAWCOR

"Roborigger is in line with our safety initiatives to remove riggers away from the crane while lifting heavy pipes."

G. Kumar, Regional Engineering Manager Asia Pacific

LAING O'ROURKE

"Roborigger has essentially eliminated the need for a rigger on the ground running after taglines and allows both riggers to be in the elevated work platform (EWP) ready to install."

Lachlan McMaster, Site Engineer, Central Station Metro Project