



**CYCLOPS
MARINE**

Load Sensors

**#measuresuccess
#measuresafety**



Load sensors for yachts and dinghies



Founded in 2018, Cyclops Marine brings together sailing expertise and wireless load sensing technology into a range of products, all designed and manufactured in the UK.

Cyclops' flagship "**smart**" range of wireless load sensors have been helping sailors win regattas all over the world; **smartlink**® and **smarttune**® have been making a widespread impact with the 2022 additions of **smarttoggle**® and North Sails' exclusive **smartluff**®, coupled with the world's first wireless load pin range. 2023 has seen the launch of the **smartbatten**® system and an expansion of the **smarttune**® and **smartlink**® ee ranges.

Easy to install, accurate and intuitive to use via either your phone or boat electronics, the Cyclops range now give sailors the chance to hit and repeat fast numbers live on the race course, on the dock and drive constant improvement with post race analysis.

Load awareness provides confidence and safety. Real time loads give the cue for action to avoid rig failure when getting the most out of equipment close to the limit.

Using Cyclops' innovation ethos, the forefront of load sensing technology has been applied to load pins, creating the first digital direct range. Aimed to achieve maximum accuracy and reduce the need for re-calibration, this is giving sailors more options and consistency. Cyclops also offer a complete custom solution service.

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What our customers sail



Grand prix



Olympic & dinghy classes



Sports boats



Racing yachts



Kite surfing



Furling and structured luff sails



Classics



Cruisers



Multihulls



Superyachts

Performance



Accurate settings on the dock



Repeatable dynamic settings on the water

Precise gear changing



Using Cyclops products is a **game changer** in sailing.

Dylan Fletcher
49er Olympic Gold Medallist 2020

Post-race review, constant improvement

Safety warning system



Safe sailing



Be aware



Time to act

Peace of mind

Real time monitoring of boat overload, simple alert displays to help you sail safe. Reef by numbers.



It was a huge
comfort to know
we weren't
overloading the rig

Brent and Ana

Sailing around the world on catamaran *Impi*

How it works – Load transmitted from wireless sensors...



Direct
connection

Gateway
connection



...to the boat's display or smartphone

Live load – dynamic data display onboard

Post race – data analysis



Smart**fitting** or
third party Apps



or compatible wireless instruments



Cyclops
Gateway

NMEA2000,
NMEA0183, NKE,
UDP and MQTT
interfaces



Boat's display

Direct connection

Mobile application

iOS and Android options, live, easy to read loads directly to your phone. Up to 16 sensors, intuitive logging function for post sailing analysis. 'Load Talk' feature to hear your loads through headphones. The mobile application allows for the sensors to be reconfigured at higher update frequencies (up to 10Hz) and wake up or sleep a sensor. The application can log loads for review at a later date if no other data loggers are available, and show a live graph of sensor loads.

Third party connections

Both Sailmon and Vakaros Atlas 2 deliver live loads directly to the display, no gateway required. Both devices have a supporting App that enables the load data to be analysed alongside other performance metrics. The Vakaros app allows the sensor's data frequency to be tuned for the specific task. Third party applications can also connect to sensors for custom data output and logging options such as Fast Skipper.

smartfitting



SAILMON



vakaros



FastSkipper



Gateway connection

The smartfittings gateway receives the wireless load data from the sensors and outputs the data in real time for sailors to use for performance targets or safety limits. The gateway has a wide assortment of connection options, with NMEA2000, NMEA0183, NKE proprietary and UDP outputs.

The gateway also logs all of the load data, which can be viewed via the web interface or downloaded for further analysis with 3rd party software. The gateway can also process the load data and along with trigonometry, addition and percent functions, the gateway has the ability to show load share percentage between sail and rigging live on the yacht's displays for consistently optimal sail trim.

- Output over NMEA2000, NMEA0183, NKE, UDP and MQTT interfaces
- Easy set-up from your phone through the web interface
- Up to 50 sensors can be connected.
- Splash and dustproof to IP54 rating.
- Mounted below deck
- Downloadable log for post-race analysis.
- 3 or 5 metre remote antenna option for carbon hulls.





1/4"



5/16"



7/16"



1/2"



5/8"



3/4"



7/8"



1"

Swap your existing 'dumb' turnscrew into your best tuning and safety tool with the Cyclops smarttune®. Accurate load sensing and Bluetooth® technology is housed in a low windage cover. Essential for forestays, the real time loads are an ideal indicator of

both headsail shape and also the impact of backstay and mainsheet on the mainsail. Further gains can be made using the side stays for refined rig balance and achieving repeatable fast settings.

With standard imperial thread sizes, the devices are simple to specify and quick to install. With the addition of a Cyclops **gateway**, the loads can be viewed on your boat electronics as well as your phone within minutes.

Key features

- 1/4", 5/16" and 1" feature wireless recharging plus on/off button and remote app control
- 7/16" to 7/8" sizes use removable AAA batteries for a 16-month battery life
- Wide range of thread sizes available

Cyclops technology built-in

- Wireless data relay
- Durable and waterproof beyond IP68
- Accurate to within +/- 1% of calibrated load

- Precision design for low weight and low windage
- Compatible with all major display brands
- Pairs with smartfittings app for data logging and analysis

Thread size	1/4"	5/16"	7/16"	1/2"	5/8"	3/4"	7/8"	1"
Calibrated load	500kg	750kg	1,900kg	2,500kg	3,800kg	5,000kg	8,000kg	12,000kg
Weight	180g	180g	390g	390g	620g	1,500g	1,530g	1,900g
Dimensions	55x112x18mm	55x112x18mm	60x170x26mm	60x170x26mm	65x230x31mm	70.5x275x40mm	70.5x320x40mm	68x400x40mm
Power	Internal LiPo	Internal LiPo	AAA batteries	AAA batteries	AAA batteries	AAA batteries	AAA batteries	Internal LiPo
Battery life	80 days	80 days	16 months	16 months	16 months	16 months	16 months	100 days
On/off control	Yes	Yes	n/a	n/a	n/a	n/a	n/a	Yes



nano



2t



5t



10t



20t

smartlink²® brings you the smallest, lightest and strongest range of wireless load sensors for running rigging and the ability to synchronise directly with leading boat electronics systems. Multiple sensors can relay directly to wireless displays or our app, or via a gateway to your boat displays. Manufactured from high performance titanium or aluminium, smartlink²® delivers real time load information for any performance or safety critical line. Find and repeat the fastest

Key features

- 2,000 hours battery life from 1 hr full charge
- In-line installation in any running rigging
- Applicable from kite boards to superyachts
- Wireless charging



settings, enabling you to quantify adjustments as the wind speed and angle changes.

Accurately calibrated to give you repeatable settings, this is the preferred load measurement device for leading America's Cup Team American Magic, as well as several Olympic and IMOCA teams. Available in five sizes dependent on your load requirement, applicable from sheets to halyards, tack lines to backstays, vang to runners.

Cyclops technology built-in

- Wireless data relay
- Durable and waterproof beyond IP68
- Accurate to within 1% of maximum working load
- Precision design for low weight and low windage

"The choice was logical, given Cyclops' reputation for accuracy and reliability. The America's Cup is won on the tightest of margins; everything is data-driven."

Tyson Lamond
Chief Operating Officer,
American Magic



- Compatible with all major display brands
- Pairs with smartfittings app for data logging and analysis
- Built-in smart button to further extend battery life

Model	nano	2t	5t	10t	20t
Working load limit¹	600kg	2,000kg	5,000kg	10,000kg	20,000kg
Dimensions	64x55x17mm	79x55x19mm	83x66x22mm	93x74x25mm	107x88x39mm
Strop diameter	4mm	9mm	10.7mm	12.4mm	15mm
Weight	72g	160g	210g	360g	798g

¹ Sensors calibrated at Working Load Limit



2t ee



5t ee



10t ee



"Matching forestay tension to the wind and sails is key to upwind performance."

Stu Bannatyne
Four-Time Winner
of the Volvo Ocean
Race

The smartlink®ee range is designed for live pin to pin load sensing. Light, strong and robust, designed for mechanical fixings such as shackles, hooks and pins. Manufactured from titanium, the range is designed for integration into many applications from standing rigging to hydraulic strut monitoring.

Key features

- Wireless charging
- 2,000 hours battery life from full charge
- Eye to eye installation including pins and shackles



The 2tee is designed to suit 'Metre' boats' and classic dayboats' forestays. The new 5tee and 10tee have broader standing rigging applications with the 5tee specifically also designed to suit the fork of major hydraulic strut manufacturers such as Harken, Sailtec, Seldén, etc.

Cyclops technology built-in

- Wireless data relay
- Durable and waterproof beyond IP68
- Accurate to within 1% of maximum working load
- Precision design for low weight and low windage

Find and repeat the fast settings, quantify adjustments as the wind speed and angle change. Complete with logging feature for post race analysis, multiple sensors can be viewed on either our app or your boat displays.

- Compatible with all major display brands
- Pairs with smartfittings app for data logging and analysis
- Built-in smart button to further extend battery life

Model	2t ee	5t ee	10t ee
Working load limit ¹	2,000kg	5,000kg	10,000kg
Dimensions	97x52x17mm	120x66x19	140x72x28
Pin diameter	12mm	19mm	28.5mm
Weight	160g	390g	710g

¹ Sensors calibrated at Working Load Limit



4.5t



7t

facnor
FURLING SYSTEMS

KARVER
sailing experience

ProFurl

KZ RACEFURLERS



"The sensor was below the furler and we knew our max working load so could push hard with confidence."

Tom Cheney
Navigator, Sunrise
Caribbean 600

smarttoggle® is the secret to flawless furling and optimal performance of non-structural furling sails. Precision load data from smarttoggle® allows you to find your fastest setting quickly and reliably for Code sails and reachers. The load share ratio between the sail

luff and the furling cable is key to maximum performance. Leading sailmakers provide recommended sail and cable load settings for each sail. smarttoggle® gives the crew live loads, while the Cyclops Marine app and gateway both log this data for review. This

makes the learning process quick and easy, allowing the crew to hit and repeat the fastest settings every time. smarttoggle® also assists with ensuring the cable is at optimum load for most effective furling, ensuring you can safely reduce sail area when needed.

Key features

- Compatible with leading furler brands
- Available in two sizes
- Combined with smartluff®, reports load share of the sail
- Wireless charging
- 2,000 hours battery life from full charge

Cyclops technology built-in

- Wireless data relay
- Durable and waterproof beyond IP68
- Accurate to within 1% of maximum working load
- Precision design for low weight and low windage
- Compatible with all major display brands
- Pairs with smartfittings app for data logging and analysis
- Built-in smart button to further extend battery life

For below furler installations or for structural furling systems, check out our Load Pin options on pages 26–29.



Model	FE-02	FE-04	FE-03
Working load limit ¹	4,500kg	4,500kg	7,000kg
Dimensions	140x50x35mm	140x50x35mm	160x55x50
Pin diameter	12	12.7	16
Mass	230g	230g	530g
Accuracy range	+/-45kg	+/-45kg	+/- 70

¹ Sensors calibrated at Working Load Limit



SS1

SS2



Exclusive to North Sails

smartluff® is designed to exclusively optimise performance of North Sails Helix Structured Luff sails. Crews can now hit the fastest settings to maximise speed both upwind and offwind, repeating settings every time.

When smartluff® load is compared with a sensor in either the forestay or Code cable, the real time load share can be calculated to help match the designed flying shapes. Helix and smartluff® sees the combining of two market leaders in Cyclops and North Sails.

This creates wider wind range opportunities for each sail and optimum performance, so the crew can use their sails to the max every time.

Key features

- Wireless charging
- 2,000 hours battery life from full charge

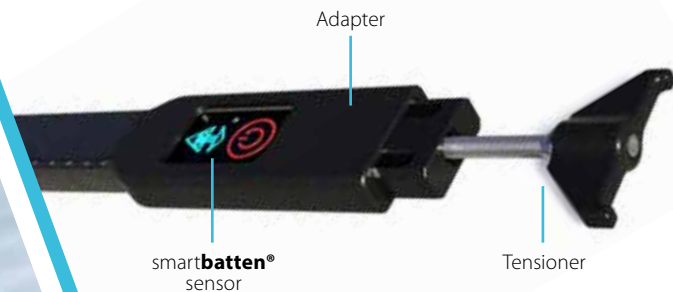
Cyclops technology built-in

- Wireless data relay
- Durable and waterproof beyond IP68
- Accurate to within 1% of maximum working load
- Precision design for low weight and low windage
- Compatible with all major display brands
- Pairs with smartfittings app for data logging and analysis
- Built-in smart button to further extend battery life



Model	SS1	SS2
Working load limit ¹	1,000kg	2,200kg
Dimensions	83x55x17mm	100x60x17mm
Finished strop diameter	6mm	10.7mm
Weight	71g	131g

¹ Sensors calibrated at Working Load Limit
Sensors installed to sail by North Sails



smartbatten® system

The smartbatten® system is designed to help control sail shape with more precision than ever before. It empowers sailors to

achieve fast, repeatable settings by accurately monitoring the compressive load in their sail battens. With the advent of moulded

sail shapes, having the batten match the sail shape is essential for optimal performance.

Key features

- Precise control of sail shape
- Live dock based pre-setting using smart **fittings** app
- Minimal weight, sensor weighing only 22g.
- On/off button and remote app on/off
- Lightweight printed carbon adapter
- Available in two sizes based on compressive load limits (100kg and 400kg)

- Designed to meet the needs of 40–80ft racing and grand prix yachts
- Compatible with the C-Tech 22 batten system, with other adaptors available on request.
- The total system only adds 43g to the sail per batten once it has been shortened

Cyclops technology built-in

- Wireless data relay
- Durable and waterproof beyond IP68
- Accurate to within 1% of maximum working load
- Compatible with all major display brands
- Pairs with smart **fittings** app for data logging and analysis

smartbatten® system



Live, easy to read loads directly to your phone



Battery life	> 80 days
Charging time	< 1 hour
Available sizes	100kg and 400kg

Digital direct pin



17/4 PH stainless steel bodies for best performance. Other materials available

Locking fork keep plates to eliminate rust and other issues associated with welding. A range of standard sizes and custom locking forks available on request



Multiple connector and anti-rotation arrangements



Internal amplifier for consistency and accurate calibration



Multiple outputs available

Digital direct pins are designed to replace existing pins, measuring loads in standing rigging such as forestays and shrouds. This gives sailors highly reliable data to optimise performance and avoid catastrophic rig overload.

Each pin is custom designed to your exact boat dimensions, unique to Cyclops is enclosing the digitisation of the load within the pin.

Key features

- Factory calibrated (no in-situ calibration required)
 - No amplifiers required
 - Custom designed
 - Starting at 20mm diameter
 - 17-4/PH stainless steel as standard (other materials available)
 - Temperature compensated within -10° to +40°C range
- Rated IP68 • Digital output from pin connector
 - NMEA2000, RS485 output options
 - Multiple anti-rotation options
 - High accuracy calibration at $\pm 1\%$ of MWL
 - Other outputs such as mV/V, 0-5V available
 - Barrelling option
 - Calibration certificates available on request

This digital direct feature removes the need for additional amplifiers, simplifies install and ensures the factory calibration is maintained.

Load pins are supplied with custom made solutions to prevent pin rotation, this avoids misalignment and maximises accuracy.



"The Cyclops live load helped us make precise gear changes and was a significant reason for our winning position."

Rob Bottomley

Owner of Sailplane
Leader of Class 1 IRC round the
Fastnet Rock in the Fastnet Race 2021



Cyclops Marine Wireless Load Pins take the performance of load pins into the future, enabling wireless installations, revolutionary in the sailing industry. Designed as drop-in replacements for existing pins in standing rigging, all electronic parts are contained within

the sealed pin body, eliminating the risk of water ingress and the simplest of installations. Wireless load pins open up the possibilities in load sensing technology as unrestricted by wired connections, giving the opportunity to know live loads in locations previously deemed

impossible such as furlers and exposed installations. Ideally suited to a plug & play safety warning systems for the fast growing multihull cruising market, easily integrating into B&G's new warning dial system.



Key features

- First wireless load pin in sailing
- Wireless charging
- Available for above furler installations
- Custom made to your specification
- Plug and play into safety warning system
- Starting at 20mm diameter
- Custom designed
- 17-4/PH stainless steel as standard (other materials available)
- Temperature compensated within -10° to +40°C range
- Multiple anti-rotation options
- Barrelling option
- Calibration certificates available on request

Cyclops technology built-in

- Wireless data relay
- Durable and waterproof beyond IP68
- Accurate to within +/-1% of maximum working load
- Precision design for low weight and low windage
- Compatible with all major display brands
- Pairs with smartfittings app for data logging and analysis
- Built-in smart button to further extend battery life

Beyond marine – Fitness



Cyclops has developed sensors that provide real-time data on load and effort during strength-based training. These sensors connect to devices like phones, tablets or watches and offer live rep counts, maximum loads and workout stats through an intuitive app.

This data-driven approach eliminates guesswork, helps athletes focus on their workouts, identifies long-term training trends and informs future programming for better results.

Additionally, the wireless load sensors enable quantifying weights in exercises like suspension training and offer gym managers insights into equipment usage for maintenance and investment decisions.





Cyclops sensors work equally well in industrial applications. Outstanding battery life, water proof, low weight and size sensors with multiple connectivity options suits many applications. Please contact info@cyclopsmarine.com for more information.



Beyond the extensive range, Cyclops are able to offer a custom service to support all your needs. From custom load sensors to bespoke gateways and Apps as well as high volume solutions. We have world leading engineers and advisers who can help with your needs.





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MARINE**

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