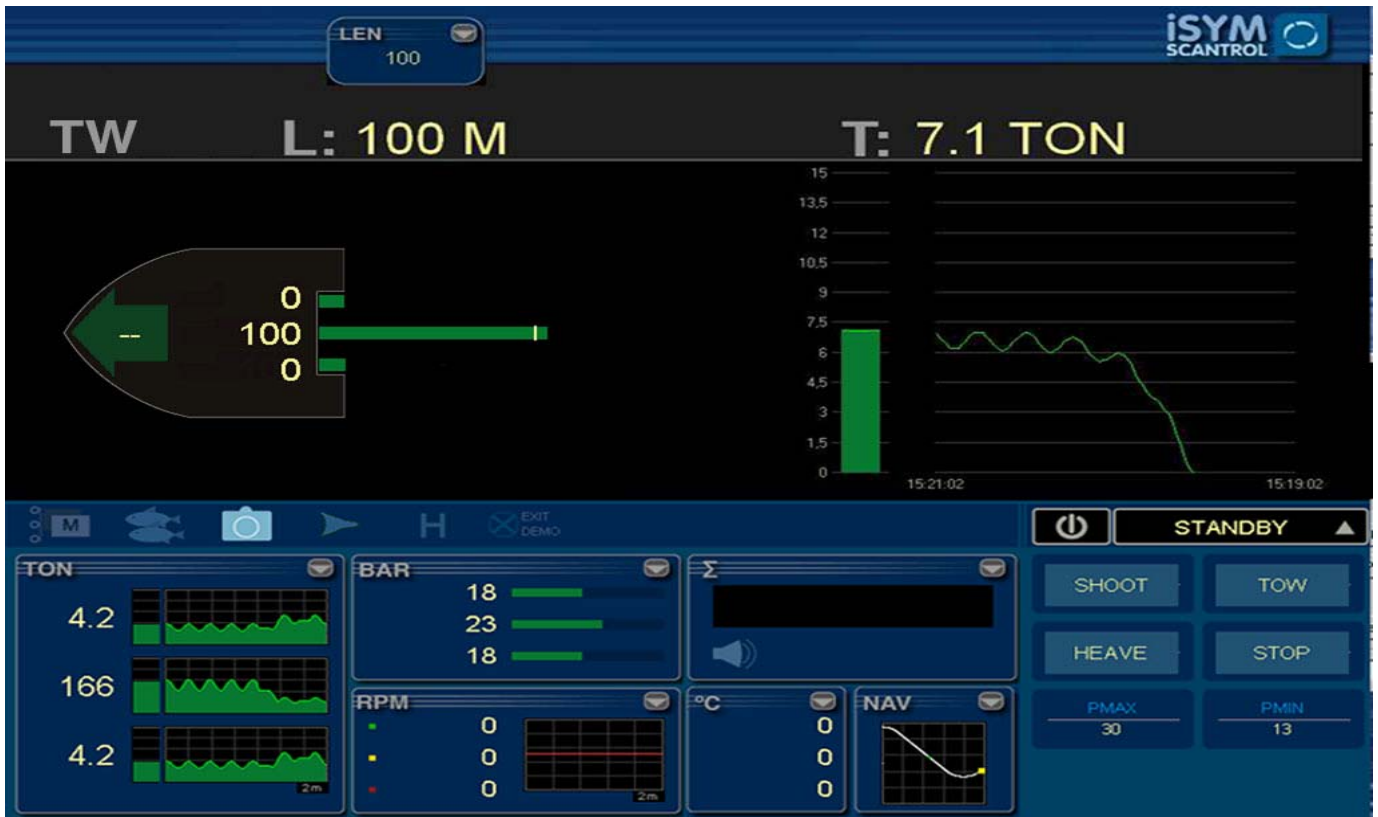




 **iSYM TOW**
INTELLIGENT SYMMETRY CONTROL

TOWING WINCH CONTROL

- Anchor Handling
- Towing



Monitoring and control system for anchor handling and towing winches

Electric and Hydraulic winches

Length and Tension Monitoring

Graphic and numeric display of wire length and tension. Alarms on overload and if an anchor slips.

Load Position Display

Graphic display showing load position relative to vessel or seabed

Auto Towing Control

Automatic control of winch pull and speed to compensate for vessel movement.

Winch Control

Reliable and efficient control of all electric and hydraulic trawl winches.

iSPOOL

Computer controlled wire spooling can increase the life time of towing wires by 50% or more.

User Friendly

Graphics and operations are developed together with experienced skippers.

Data Logger

Simple access to historical data to let you monitor how a situation develops, or analyse previous recordings.

iSYM Tow Functions	Standard	Option
Wire length monitoring	x	
Wire tension monitoring	x	
Winch speed / wire speed monitoring	x	
Data recorder	x	
Load position display	x	
Auto towing control		x
Auto tension control		x
Auto speed control		x
Quick release		x
Echo sounder interface		x
MRU Interface		x
ISPOOL – Electronic wire spooling		x

Automatic Control Functions	Heave Compensation	
	OFF	ON
Automatic Pay Out- <ul style="list-style-type: none"> • Programmable speed • Programmable length • Programmable intermediate stops 	Winch motor speed is controlled by iSYM to keep constant wire speed as programmed by the operator. Controlled acceleration and deceleration. Winch motor torque is set to maximum by iSYM.	Winch motor torque is controlled by iSYM to pay out wire with an average speed as programmed, while compensating for vessel movement. Controlled acceleration and deceleration.
Automatic Position Hold	The winch is stopped and the brake is engaged	iSYM controls the torque of the winch motor to compensate for vessel movement, and to reduce the movement of the load.
Automatic Heave- <ul style="list-style-type: none"> • Programmable speed • Automatic stop limit • Programmable intermediate stops 	Winch motor speed is controlled by iSYM to keep constant wire speed as programmed by the operator. Controlled acceleration and deceleration. Winch motor torque is set to maximum by iSYM.	Winch motor torque is controlled by iSYM to heave in wire with an average speed as programmed, while compensating for vessel movement. Controlled acceleration and deceleration.

Towing

Towing mode display with read out of wire length and tension. Graphic tension diagram to make it easy to detect increase or decrease in tow tension.

Access to set length and tension in auto towing mode.



Anchor Handling

Anchor handling mode display with readout of wire length and tension. Operator can set pennant wire length and use a “trip counter” in combination with warning limits.



Winch Status

iSYM Winch Status Display gives an overview of motors, pumps, clutches and brakes.

Can also be set up for touch screen control.

Easy to set up for individual winch configurations



Data Recorder

All winch and navigation data are continuously recorded and stored in files.

Recorded data can be played back on the iSYM screen.



Interface

iSYM measures wire length and tension and control winch speed and pull. iSYM includes simple and well arranged interface to most winch types.

iSYM can control following winches:

Hydraulic	Low Pressure
	Medium Pressure
	High Pressure
Electric	AC Motors
	DC Motors

iSYM Winch Interface:

Sensors	Wire Length
	Winch Speed
	Wire Tension
Controls	Winch Speed
	Winch Pull

Electronic Wire Spooling:

iSYM can be delivered with program for electronic wire spooling (iSPOOL). The spooling gear is computer controlled to get exact spooling even with varying wire diameter. You will save time spooling on the wires, and the wire life can be extended by more than 50%

The picture shows Aker Brattvaag Winch on board f/v Atlantic Enterprise. One winch with electronic spooling.



Sensors for tension and length measurement

Various sensor configurations are possible:

Tension measurement

- Load cell sheave
- Load cell in deflector sheave
- Load cell in winch foundation
- Load cell in winch brake
- Hydraulic pressure
- Electric motor current

Length measurement:

- Encoder or pickup on sheave
- Encoder or Pickup on deflector sheave
- Encoder or pickup on winch drum

Upgrading

The flexibility of the iSYM system makes it easy to upgrade existing load monitoring systems.

Existing sensors can be used if in good condition, or replaced if required.

There are also various solutions for readout stations locally by the winch, in the control room, or on the bridge.

iSYM has NMEA and Ethernet ports for easy interface to other systems on board.