



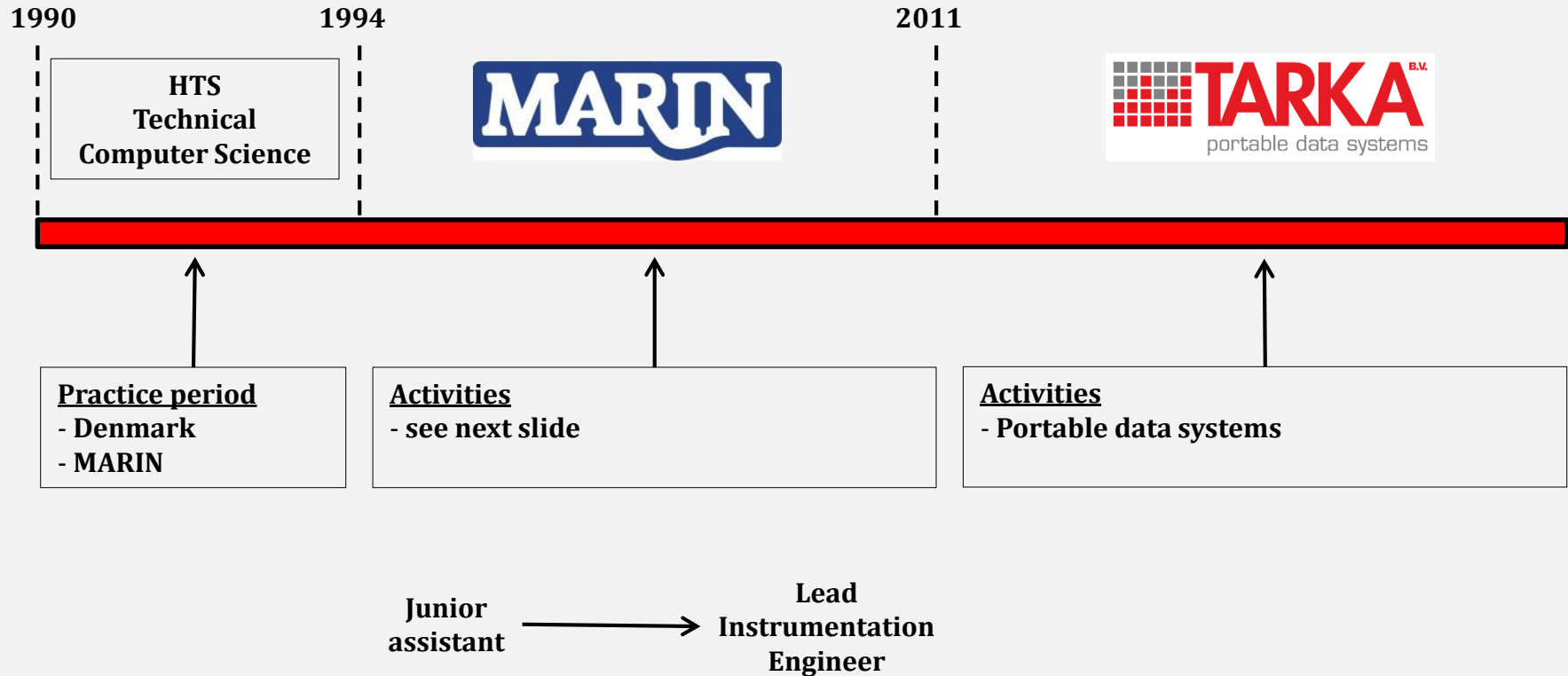
**TARKA-SYSTEMS BV**

**PRESENTATION**

**NOVEMBER 2015**

- INTRODUCTION**
- FIELD MEASUREMENTS**
- TARKA-SYSTEMS**
- PAST, NOW, FUTURE**

## TIMEFRAME HENRY WIJGERSE



1994

2011



## Activities

- Design and development of measurement equipment
  - sensors, cabling, board, pc
- Design and programming of data-acquisition software
- Worldwide travel to ships and oil-rigs (100 days year)
- Install equipment on-site
- Executing trials and measurements

## MARIN

### What to measure

Motion sensor (6DOF)  
Wind  
Wave  
Flow (Current ADP, ADCP)  
DGPS (RTK)  
Incline  
Acceleration  
Strain gauges  
Force sensor  
Torque / Engine power

### **Types:**

Bus-systems  
Serial data (RS232/RS485)  
Raw Electrical values (mA,V)

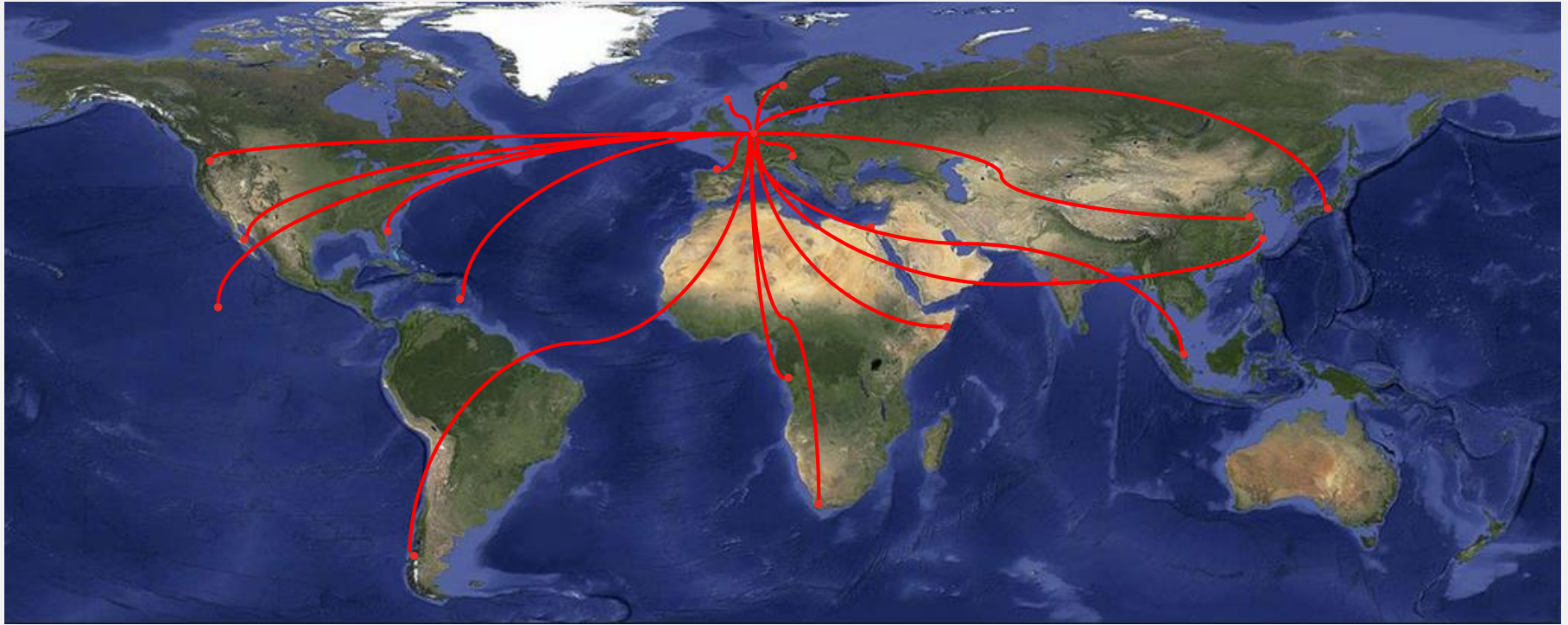
### Applications

Motion monitoring  
Environmental monitoring  
Tow monitoring  
Fatigue monitoring  
Ship behaviour monitoring

### Areas

Maritime  
Offshore





## Field experience and practical knowledge

- Average of 100 days abroad for a period of 10 years
- Practical experience with onsite measurements
- Practical experience with design of field systems (hardware and software)

## Large Projects

(as lead engineer at MARIN)

### FPSO USAN (Korea 2010)

Installation of hardware and software system in Korea and Nigeria.



### United States Coast Guard (San Francisco 2008 - 2010)

Site manager during installation of fatigue measurement system on coast guard cutter “BERTHOLF”, hardware and software. Overall 200 sensor inputs, acc, strain-gages, environment.

### FPSO GLASDOWR (2008 - 2011)

Installation of system on FPSO GLASDOWR of BLUEWATER for several projects in Scotland, South Africa and Singapore.



### TLP MARCO POLO (USA 2007 - 2010)

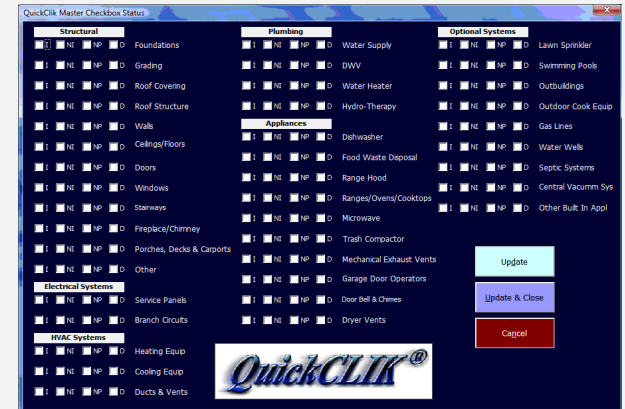
Installation and maintenance of hardware and software at dock-site and on-site in Gulf of Mexico.

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## Practical points important with field measurements on-site

- Good preparation
- Rugged systems for harsh environment
- Easy to transport
- Easy to start
- Easy to operate
- Knowledge of equipment/software
- Adaptability to permanent changes
- No support from colleagues / phone / mail



“click tick-box to save data”

Very difficult on moving ship with seasickness.

## Examples of practical errors

- One sensor connector, multiple inputs connector
  - Clear naming and numbering
- Laptop with power save options
  - after 2 hours laptop on standby, screen off, hard disk off
- Equipment was packed or shipped by colleague
  - Missing cables or wrong cables
- Sensor specification not equal to practical situation
  - Adjust type of inputs or number of inputs
- Software presentation not equal to client expectations
  - Change of software, all programs with license key present
- Time critical equipment not in hand luggage
  - Installation of shaft must be done before ship sails away
- Distance sensor to computer more than expected
  - V or serial signals can not be used.

## Start of portable systems

- Due to fast response time and easy the first portable systems were developed at MARIN for private use to gather data in a more easy way
- Systems were noticed by other companies
- Requests for delivery of portable systems
- MARIN did not reply to these request while MARIN is a research institute and not making tools
- Reason to start TARKA-SYSTEMS



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## **TARKA-SYSTEMS bv**

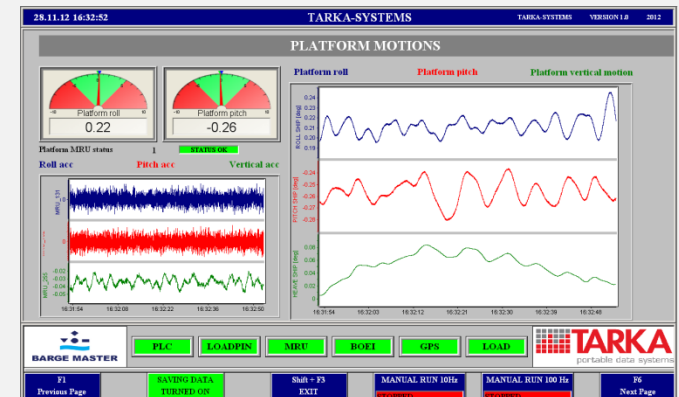
- Founded 1 October 2011
- Development of portable data systems
- Client-specific measurement and monitoring tools
- One-Stop solution for complete systems (hardware/software)
- Based on 15 years of practical experience

### **Complete monitoring systems**

- Production and assembly
- Hardware & Software
- Installation
- Maintenance
- Support

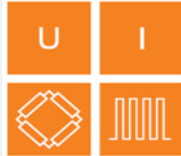
## Benefits for the CLIENT

- A one-stop solution for a complete monitoring system (sensors, hardware and software).
- Single investment for multiple solutions, modular setup of systems.
- One monitoring system for different data sources for synchronous data storage of all inputs.
- Reduce setup time and improve uptime.
- Data output format matching analyzing tools.
- Very clear GUI to improve decisions and overall safety.





## sensors



Direct sensor input



(serial) device input



Bus systems  
(ethernet) input

## hardware



Handheld tools

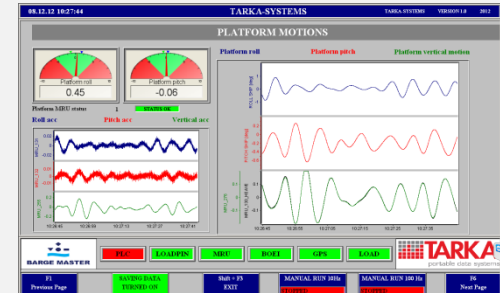


Portable systems



(semi) permanent systems

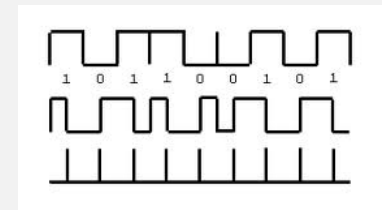
## software



Clear GUI



Data storage



Output to analyze  
Matlab, csv

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Others .....

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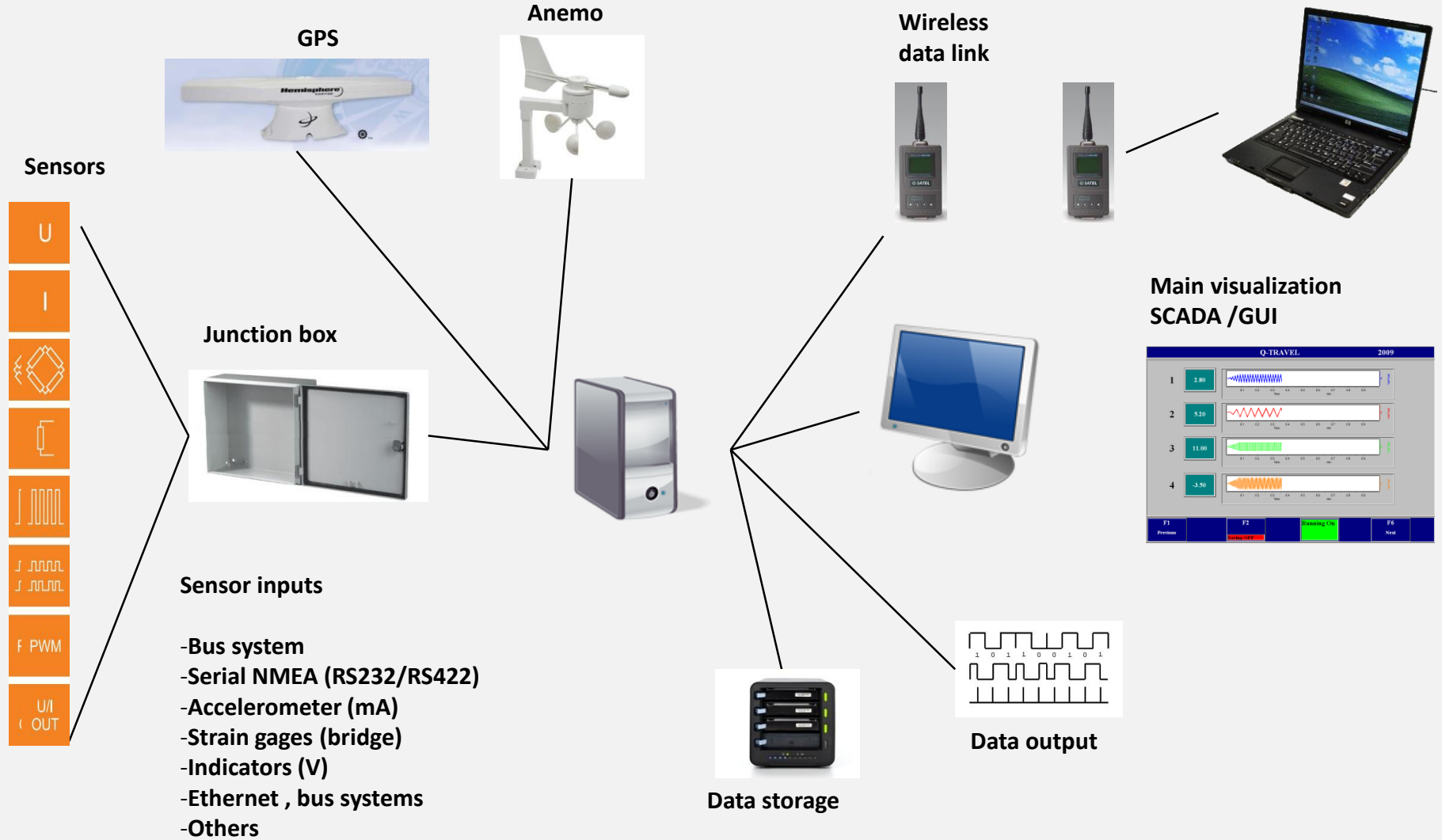
## Applications

Motion monitoring  
Environmental monitoring  
Tow monitoring  
Fatigue monitoring  
Ship behaviour monitoring  
Incline measurement  
Others .....

## Areas

Maritime  
Offshore  
Salvage  
Civil  
Mining  
Industrial  
Chemical  
Agriculture  
Infrastructure  
Archeology  
Research  
Oceanography  
Others .....

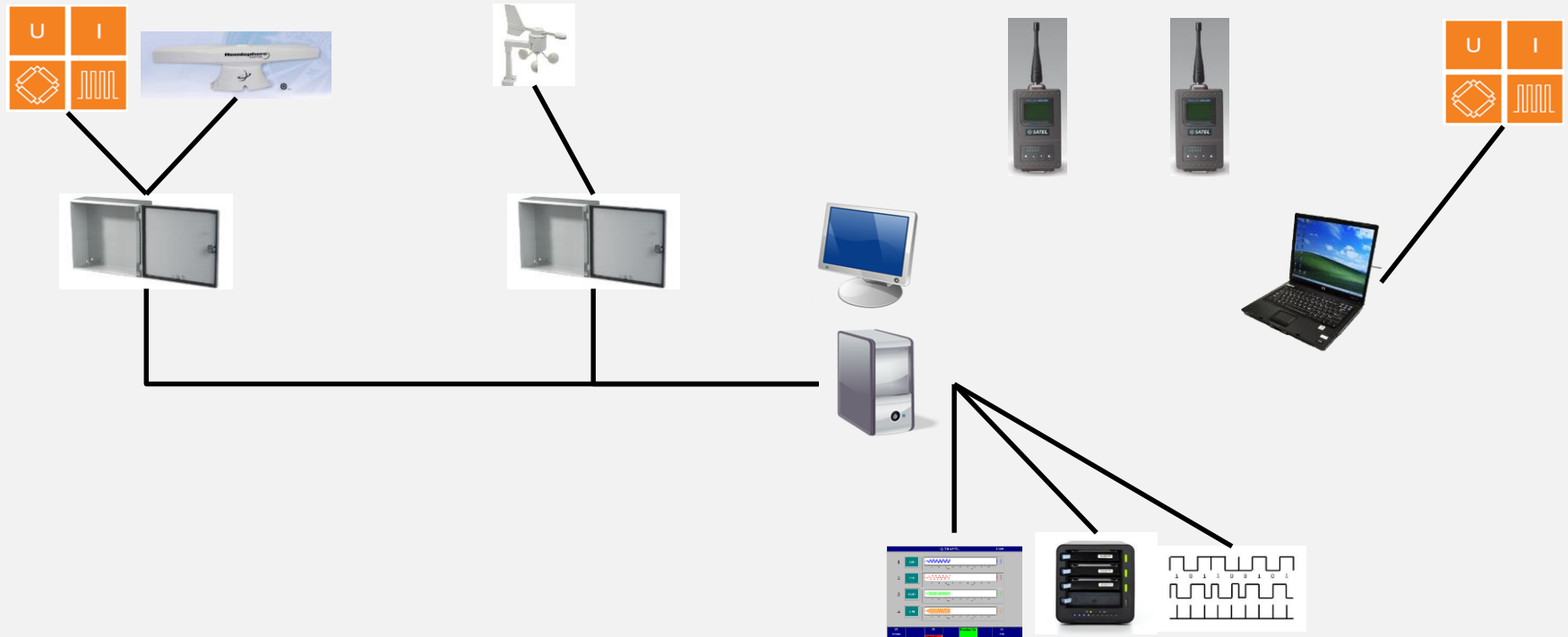
## PERMANENT SYSTEM



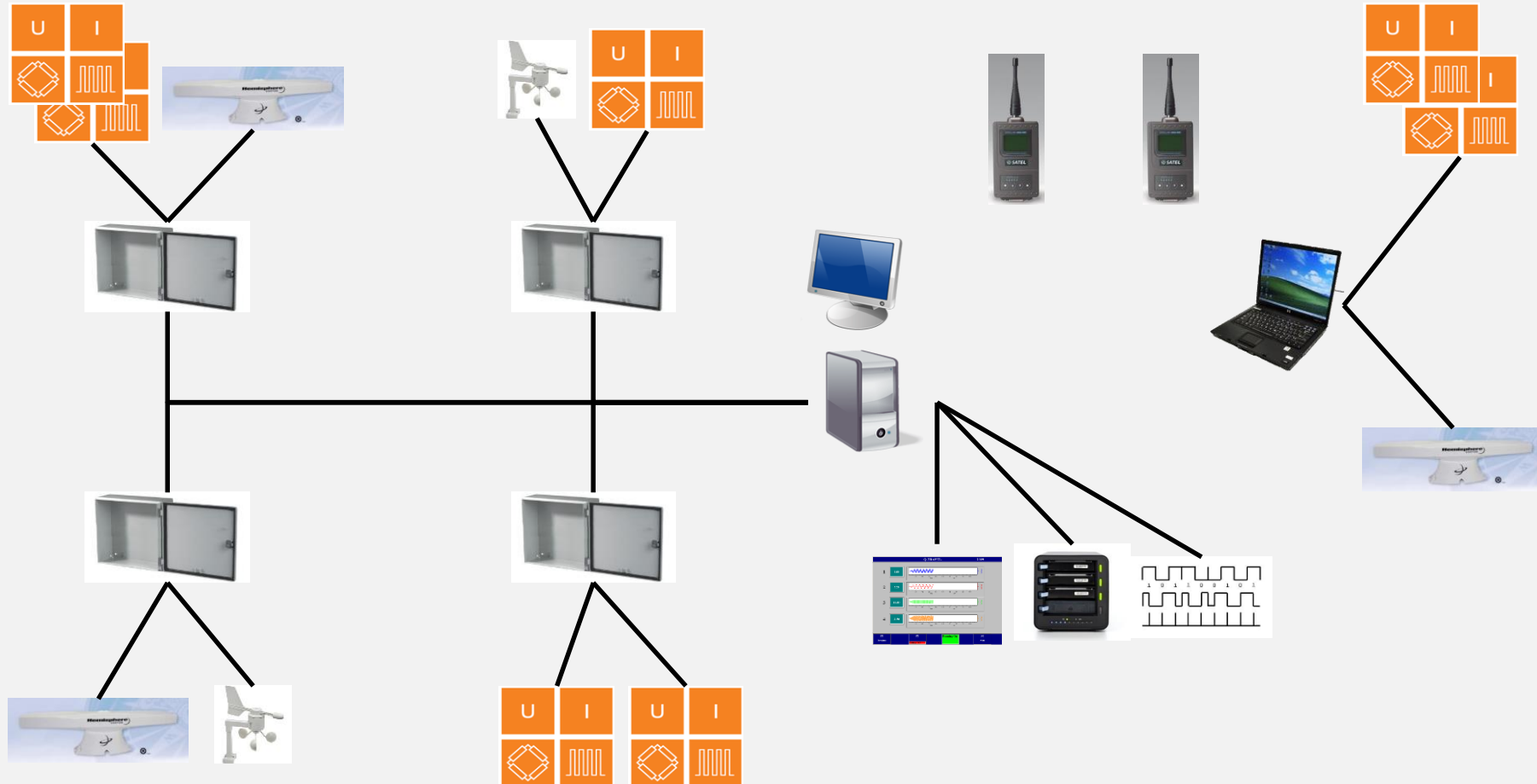
## PORTABLE SYSTEM



## MODULAR SETUP - BASIC



## MODULAR SETUP - ADVANCED





## Power supply

-Direct power from net (95-240 Vac).



-Battery supply small

-Handheld tools

-Travel cases



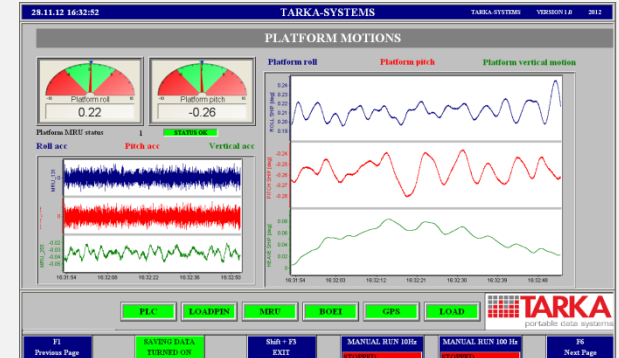
-Battery supply + solar

-Semi permanent systems

-Permanent systems



# TRANSPORT MONITORING



## Monitoring System covering the following items:

- Battery control system with solar panels
- Motion sensor
- GPS sensor
- Tracker unit with data visible on website
- Wireless data-links between barge and multiple tugs
- Data storage and presentation
- More.....



## SALVAGE PROJECT



### Motion monitoring during salvage operation

Motion sensors, wireless data link, visualization software



## FLOATOVER PROJECT



**Complete motion and environmental monitoring system for floatover installation.**

Motion sensors, wireless data link, wind, wave, current

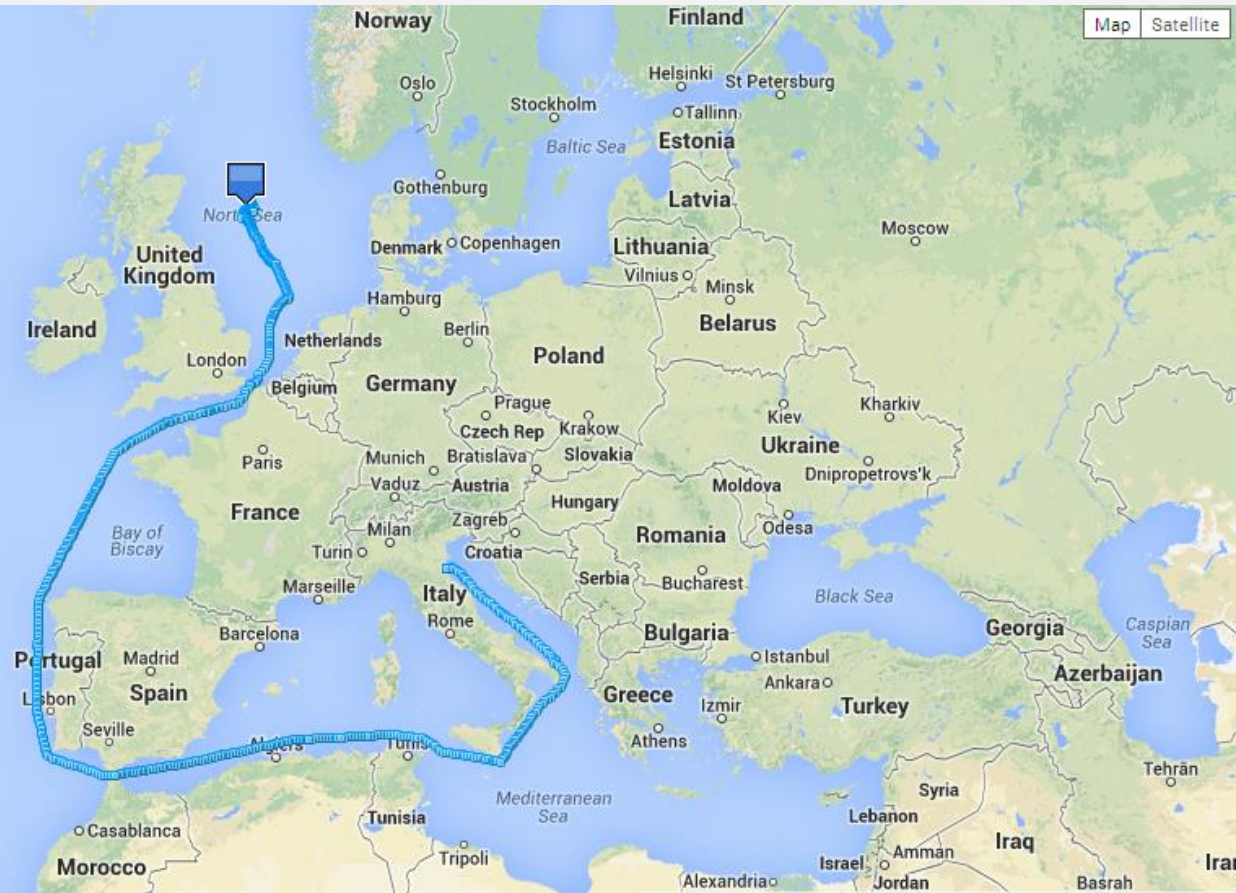
## STRUCTURAL AND TRANSPORT MONITORING



**Stress, motion and environmental monitoring at tow and installation.**  
Strain gauges, Motion sensors, wireless data link, wind, wave, current



## TRUE GLOBAL TRACKING UNIT GTTS - 3000





## CLIENT SPECIFIC PORTABLE SOLUTIONS



**Portable ethernet  
server for field  
applications  
(Running on batteries)**



**Portable tachometer for petro-chemical industry  
(Running on batteries)**

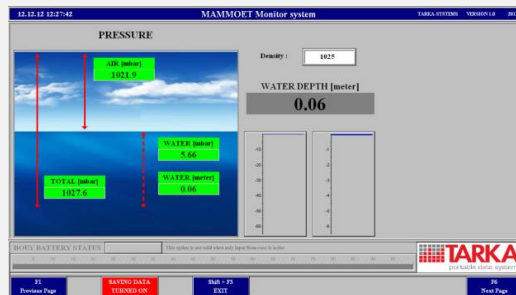




## FREEBOARD SYSTEM

Handheld unit for freeboard and incline measurements





## COMPLETE MONITORING SYSTEM

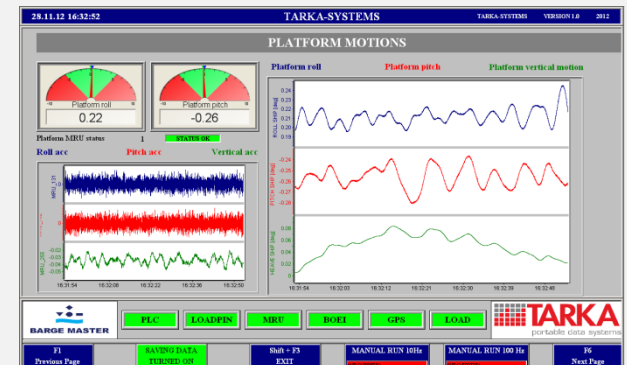
- 4 x acc sensor for mounting on wreck
- 4 x incline sensor for mounting on wreck
- 2 sensors for total and atmospheric pressure
- 1 x portable data acquisition case
- 1 x wireless data link with free floating buoy
- 1 x wireless video link with free floating buoy
- 1 x data-acquisition software





## COMPLETE MONITORING SYSTEM

- Motion sensor (MRU)
- PLC (siemens S7) data
- GPS
- Wave buoy
- Loadpins
- Wireless motion box on load







- 1** Data / Position by IRIDIUM Tracker
- 2** Motion Measurement
- 3** Wind / GPS / Environmental
- 4** Fatigue sensors / Strain gauges
- 5** Universal sensor inputs

- 6** Wave data
- 7** Tow forces
- 8** Wireless data link
- 9** Data logging and GUI
- 10** Other options

 **TARKA**  
portable data systems

[www.tarka-systems.nl](http://www.tarka-systems.nl) | [info@tarka-systems.nl](mailto:info@tarka-systems.nl)

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## PAST

- Single input (V,mA)
- Sample frequency max 10Hz
- Data on floppy disk or tape
- Complex to write measurement programs
- Very limited visualization and graphics
- No robust laptops or pc
- Very expensive satellite links

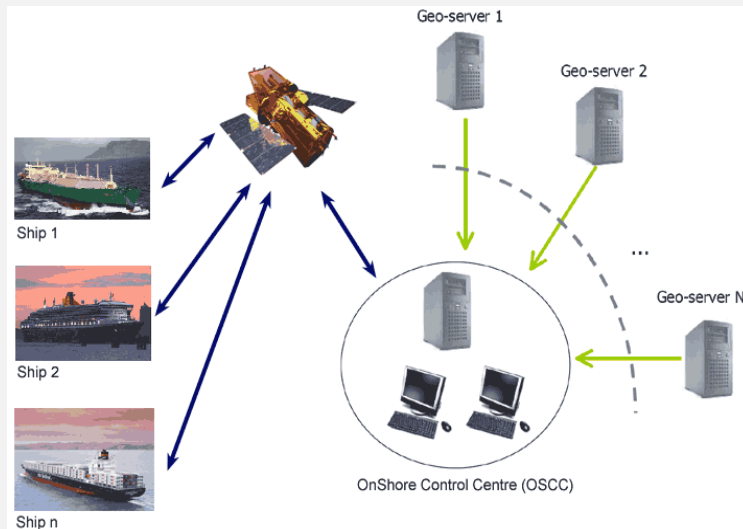


## NOW

- Unlimited inputs
- Multiple data types and bus-systems
- Unlimited data storage (Terabytes SSD disk)
- Professional DAQ programs with unlimited GUI
- Portable laptops, pc, palmtops, handhelds etc...
- Easy remote data presentation (SIM, Satellite/IRIDIUM)

## FUTURE

- Remote access and control of measurement
- Higher bandwidth for data transport from remote to from office
- Higher speed for data transport from remote to from office
- Lower costs for data transfer
- Data solutions in the cloud with multiple access





**THANKS FOR YOUR ATTENTION**

**QUESTIONS ??**

More information available at website:

**[www.tarka-systems.nl](http://www.tarka-systems.nl)**