



INNOVATUM
Company Profile



INNOVATUM PRODUCT REFERENCE MANUALS

Section 0

COMPANY PROFILE

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SYMBOLS

The following symbols are used within these manuals



Important Note: items of particular importance.



Caution: items where care is required.



Danger: items where a hazard may exist.



ESD Hazard: items where ESD precautions may be required.

ERRORS and OMISSIONS

Innovatum will be pleased if errors or omissions are notified to our offices in **Bury St Edmunds.**



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Date	Issue	Amendment	Section	Page
1 Mar 2011	1	Initial Issue	All	
29 Nov 2012	2	Review	All	



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0.1 Introduction

Innovatum Limited was incorporated in January 2008, by Terry Slater, Sarah Slater and Rob Nunn, by means of the purchase of the assets of Innovatum International Limited, with the aims of:

- a) Continuing the development and manufacture of submarine magnetic pipeline and cable location equipment.
- b) Carrying out inshore and inland survey of buried pipes and cables utilising purpose built towed sleds, ROVs and Tracked ROVs
- c) Providing a cable & pipeline magnetisation service to clients worldwide
- d) Design and manufacture of specialist electronic and electro-mechanical products for the sub sea and other industries

Innovatum is one of only two significant manufacturers of submarine cable & pipeline tracking equipment, and we are currently the only one to have succeeded with magnetic measurement equipment. The company currently has 10 permanent staff, and is able to call on the resources of other consultant engineers who have specialised in working with pipe and cable tracking equipment.

Originally based in Aberdeen, Scotland, the company moved to Bury St Edmunds, England in April 2000, in order to better serve locally based cable engineering companies, and take advantage of the modern fast transport links to Europe. In 2004 the company became a wholly owned subsidiary of MDU Resources Inc., of Bismarck, North Dakota, USA. The US operating company Innovatum Inc., based in Houston, was closed in July 2007 and all business transferred to the UK. With the purchase of the assets from MDU the company became a wholly European operation. Innovatum Ltd holds a pool of pipe and cable tracking equipment, 2 ROVs, towed sleds, survey equipment and magnetisation equipment at its premises in Bury St Edmunds, Suffolk, UK. This equipment is available for world wide mobilisation at short notice.



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0.2 Products

Innovatum products are primarily used for the location, tracking and survey of submarine pipelines and cables. These items are located by means of their magnetic fields, and Innovatum is the world leader in the design and production of such systems. All of the following products are designed and manufactured in house:

- a) **SMARTRAK** The "INNOVATUM" SMARTRAK is a magnetic pipe and cable tracking system for use on a variety of surface and underwater vehicles. It is capable of locating, tracking and measuring the position of pipelines, cables, ferro-magnetic objects and debris, by means of their intrinsic magnetism, their distortion of the earth's magnetic field, or via an impressed DC or low frequency AC current. The SMARTRAK is designed for tracking from smaller vehicles than has previously been possible, with a much reduced size and weight of sensors and subsea electronics, coupled with an improved performance due to better sensitivity and reduced noise levels. SMARTRAK can be operated in Passive Magnetic, Active AC (Tone) and Active DC modes. A magnetic field Spectrum Analyser is built into the system
- b) **SMARTSEARCH** is an adaptation of the SMARTRAK unit, with special software for magnetic mapping using up to 12 sensors. It is particularly suited for locating weapons (UXO), wrecks, lost pipes and cables and archaeological remains. Position may be imported from almost any combination of surface and subsea systems.
- c) **MAGNETISERS** Enhancement of magnetic fields in submarine pipelines and cables enables a dramatic improvement in range of tracking, and more importantly of accuracy. Innovatum has produced several types of Field Enhancers (Magnetisers) for use on differing products.
- d) **iPSS**. The iPSS (Innovatum Portable Survey System) provides a compact suite of hardware and software designed for ease of use and very rapid mobilisation. The systems may host the ROV Data, ROV and surface acoustics, navigation, survey data acquisition and ROV video data.
- e) **TONE GENERATORS** Innovatum produces a variety of "Tone Generators", used for injecting tracking signals into cables and pipelines. The theory, use and maintenance of these units is described.
- f) **AREA SURVEY SYSTEM**. The Area Survey System is a deployment system for SMARTSEARCH which allows rapid magnetic mapping from a small vessel.
- g) **SLUG**. The SLUG is a bottom crawling AUV designed for surveying pipelines and cables through the "Surf Zone"



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0.3 Services

In addition to the product design and manufacture Innovatum Ltd offers services including:

- a) Rental of equipment. A list of current equipment is at appendix 1
- b) Field support of rental equipment
- c) magnetisation of submarine cables, umbilicals and pipeline. Magnetisation procedures are described in Appendix 2
- d) Survey of submarine pipelines and cables in shallow (<50m) waters. Survey services are normally carried out under the trading name of SUBMAGNETIX, and may include all services including survey planning through to final report preparation, and even provision of vessels

0.4 Personnel

All personnel employed by Innovatum Ltd. are widely experienced in all aspects of ROV engineering, offshore survey work, and electronic and mechanical engineering. Innovatum does not have separate operational departments, and all our personnel can carry out all aspects of the field work, including ROV operating and survey data gathering.

A brief introduction to a selection of our personnel follows, with selected full curriculum vitae in the appendix.

a) Terry Slater

Terry is the founder and Managing Director of Innovatum Ltd. He has been involved in offshore survey and pipe & cable location work since 1979, and latterly was the founder and managing director of TWS Electronics, (which became Merpro Control Systems), who were the one of the worlds leading manufacturers of underwater bathymetric systems and ROV control systems. Terry handles most of the commercial aspects of Innovatum Ltd, and is responsible for the overall hardware design

b) Robert Nunn

Robert is the Technical Director of Innovatum Ltd., with responsibility for all aspects of engineering design and maintenance. He is qualified in software engineering. He has produced exceptionally capable & innovative systems whilst with the company.

c) Chris Frost

Chris is the General Manager of Innovatum Ltd, with responsibility for all aspects of manufacturing and service. Chris is an offshore engineer of exceptional talent, with a background in manufacturing electronics. He is fully capable in all aspects of offshore survey, including software work.

d) Brian McKerrow

Brian has formal qualification in robotic engineering



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f) Sean Quirk

Sean is currently engaged in developing software applications for both equipment production and survey operations

h) Dziga Walker

“Ziggy” takes part in our field operations and is helping to develop new tools and techniques in the cable survey market.

f) Tom Smith

g) Ian Macro

0.5 Capabilities

- Innovatum manufactures the innovative SMARTRAK submarine pipeline and cable tracking device. This unit is in full production and Bury St Edmunds, with over 30 units now delivered. This unit was wholly designed in the UK. SMARTRAK is available in Passive Magnetic and Tone tracking modes, with combined systems in one small unit. Systems are available for sale or rental.
- SMARTRAK PLUS is the replacement for the obsolescent MAXTRAK & ULTRA systems. SMARTRAK PLUS has the capability of solving the tracking algorithms for multiple arrays simultaneously, and to track at both the front and rear of vehicles simultaneously, thus enabling cable maintenance vehicles to “dock” onto the target cable in zero visibility. Tracking in all modes is possible.
- A new software tool, SMARTSEARCH, has been developed to map buried magnetic objects. This is of particular use in site clearance, UXO detection and debris searches. Six units have been sold, and units are also held in the rental pool.
- Two towed survey sleds are held at Bury St Edmunds, complete with all support equipment, including trailers for road mobilisations. These units are often used for survey tasks on inshore installations such as marine windfarms. The company is able to carry out surveys of buried pipes and cables, and produce a high quality final report with depth of burial, derived from the pipe & cable tracker, and high precision positioning derived from GPS or DGPS systems. This unit may also be used for the location and depth measurement of underground cables and oil, gas and water pipelines on land.
- Two SAAB Seaeye “Falcon” ROVs, fully equipped for inshore cable survey, are operated by our own staff under the SUBMAGNETIX trading name. The FALCONS normally carries a SMARTRAK unit, plus a scanning profiler and altimeter. Innovatum has full surface (DGPS) and underwater (USBL) navigation systems, plus a full suite of data acquisition and processing software.
- A total of six mechanical and six electrical cable and pipeline magnetisers with capability for magnetising products up to 300mm in diameter
- An innovative tracked vehicle, the SLUG, is under development to survey cables from the beach to 5 metres water depth, which is a very challenging area.



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- The company is able to provide a consultancy service to advise cable and pipeline operators, manufacturers and installation companies on all aspects of buried pipe and cable location, tracking and survey. Innovatum equipment may also be used for buried ordnance location surveys, both in water and on land.
- Innovatum Ltd has the in-house expertise and facilities to design and build a wide variety of electromechanical and electronic products to support the manufacturing processes.
- Pressure testing equipment is available for in house products to 3000 metres sea water depth

0.6 Premises & Equipment

Innovatum occupies premises at Woodlands Business Park, Ingham, Bury St Edmunds, adjacent to the A14 trunk road, with easy access to the East Coast ports, cross Channel ferries and the London Airports. The accommodation consists of 175 square metres of workshop space, 75 square metres of laboratory and electronic workshop space and 75 square metres of office space. 415 volt 3-phase electric power is available in the workshop area. Access to the workshop areas is via 2 roller doors.

Tools available include a fully equipped electronic workshop, and basic mechanical engineering facilities including a welding plant.

CAD facilities are available for the production of :

- a) PCB layouts
- b) Electrical and electronic schematic drawings
- c) Engineering and production drawings
- d) Survey charts

0.7 Approvals

Innovatum Ltd holds approval to EN ISO 9001-2008.



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1. Appendix 1 Rental Equipment List

Item	Quantity
SMARTRAK 3 (Passive Magnetic Only)	4
SMARTRAK 9 (Passive Magnetic & Tone Tracking)	3
ULTRA 04 (Tone Tracking only)	1
Survey Sled (Fitted for SMARTRAK or ULTRA)	2
Tone Generator	6
Tone Generator HV Unit	2
SMARTSEARCH 12	2
MAXTRAK (Passive Magnetic for DC Cables)	1
FALCON ROV	2
Micron Nav USBL (Complete with pole mount)	3
HEMISPHERE DGPS + Heading unit	2
iPSS Systems	3
Super Seeking Scanning Profiler	2
Small Diameter Cable Magnetiser units (Up to 40 mm dia)	3
Large Diameter Cable Magnetiser Units (Various diameters to 300mm)	6



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Appendix 2

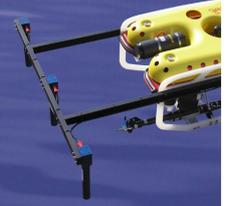
SUBMAGNETIX Work History

Date	Client	Location	Task	Vessel
Sept to October 2010	JD Contractor, Denmark	Baltic Sea	ROV Survey of Baltic 1 Windfarm Infield Cables	Sea Master
October 2010	Cadden, France	English Channel	Sled Survey of FO cable	
April & May 2011	Diving del Peru	Pacific	Set up ROV Survey system complete	
March 2011	Fugro Survey Ltd	N Sea	ROV survey Greater Gabbard Wind Farm Export cables	
April 2011	GeoXYZ, Belgium	N Sea	ROV Survey Thornton Bank Power cables	GeoSurveyor 4
July to September 2011	Fugro Survey Ltd	N Sea	ROV survey Greater Gabbard Wind Farm Export cables	GeoSurveyor 4
September 2011	Cadden, France	English Channel	Sled Survey of FO cable	
September 2011	GeoXYZ, Belgium	English Channel	ROV Video survey of seabed	Geo Ocean
September 2011	Mutual Energy Ltd	Irish Sea/N Channel	ROV survey to locate cable fault	Challenger of Leith
September 2011	Fugro Survey Ltd	Irish Sea	Sled survey of power cable	
March 2012	Fugro Survey Ltd	N Sea	ROV Survey of Leiston 1 cables	GeoSurveyor 4
February 2012	GEOMYTSA, Spain	Atlantic Ocean	Pipeline survey with GEOMYTSA ROV	
March to May 2012	Fugro Survey Ltd	N Sea	ROV Survey of Greater Gabbard wind farm Cables	GeoSurveyor 4
February 2012	J F White Company, Boston USA	Inland	Locate FO cable	None
March 2012	Fugro Survey Ltd	Thames Estuary	Sled survey of London Array Windfarm cables	Coral Wind
June & July 2012	Fugro Survey Ltd	N Sea	ROV Survey Greater Gabbard Windfarm Cables	Coral wind



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Appendix 3

CVs of Representative Personnel