VAN WALT

equipment for soil and water research

Soil Research Equipment

From Van Walt

Soil Moisture & Soil Research Equipment

When it comes to soil research – Van Walt has built up a unique range of equipment. From hand augers, probes and gouges to percussion window sampling systems. From individual soil moisture probes to multi-sensor soil and water monitoring networks. Soil quality sensors for monitoring soil parameters like redox and pH, to sophisticated laboratory equipment. From taking samples and readings onsite to robust, accurate and affordable telemetry systems delivering your soil data direct to your desktop, tablet or mobile.

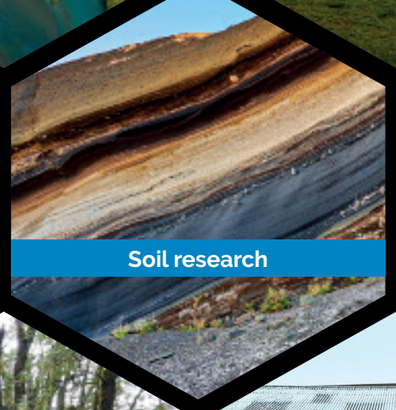
From obtaining disturbed soil samples, to monitoring the moisture content of a soil or the level of oxidation, we have one of the largest selections of soil research equipment for soil scientists. Much of this equipment is exclusive to Van Walt and is totally compatible with our Data Collection Telemetry systems – designed and manufactured to our unique specifications.


Agriculture


Flood risk assessment


Crop irrigation & optimisation


Peatland studies


Soil research


Research into crop yields


Archaeology


Soil health studies


Site investigations


Water resource management


Geotechnical assessments

Applications

Our values

At Van Walt we understand it is our attention to detail, quick response to your enquiries and creative equipment solutions, that sets us apart from other equipment suppliers. Our range of equipment helps you protect our environment and precious natural resources.
From concept, to design, to manufacture; from auger, to datalogger, to a full turnkey monitoring system - no project is too small or too large. We offer equipment that delivers time and time again. Hundreds of our Data Collection telemetry systems have been deployed around the World. Many have been installed onsite, reliably collecting data, for many years. We never sit back, the system keeps evolving and developing with improvements, and with the addition of new sensors and parameters.

It is not just our telemetry systems that have stood the test of time, our Soil Research range of equipment is rugged, reliable and site ready. It has been tested, re-tested and tested again and we are always prepared to look at alternatives – if that's what it takes to get your job done.

Whatever you buy or rent from us, our service never ends with the supply of equipment, we offer full installation options; equipment training and after-sales customer care – our reputation depends on it.

Quality and Excellence

Of equipment and service.

Respect and Consistency

Listening to your needs, using our experience and expertise, to offer solutions that help you meet your project objectives, each and every time.

Dynamic and Commercial

Adding value to your projects with equipment solutions and field services that you can trust.

Proactive and Innovative

Developing the equipment you need to protect the World's resources for future generations.

VAN WALT
equipment for soil and water research

Sediment & Soil Sampling

From a Peat Probe, to an Auger Set (or Single Auger or Soil Gouge) to a mechanical Window Sampling System, Van Walt has one of the most comprehensive selections of Soil & Sediment Sampling equipment available. These tools are ideal for all types of soil research; ecology; archaeology; for wind farms; for crop research and development; agronomy; mineral exploration and crop diversity. They are the tools for basic soil research around renewable energy and the low carbon sector.

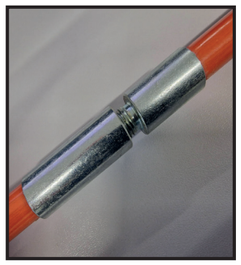
Window Sampling System

The Van Walt percussion Window Sampling System is a powerful, non-destructive, low disturbance site investigation tool. It uses an optimised GS connection with a screw-on, reinforced cutting edge for high entry efficiency

The Van Walt Window Sampling System is ideal for sampling and research in sites with restricted access, where there is the potential for contaminated samples, when an undisturbed sample is required or you are sampling for the exploration of base metals or for mineral deposits, like gold and other precious metals.

- A range of options including a Ø63mm liner sampler which takes Ø50mm, 1 m undisturbed core samples and window samplers from 40 to 80mm
- Samplers are driven to the required depth using a percussive hammer such as the Atlas Copco Cobra TT
- Portable system capable of being transported to site in car or van
- Relatively lightweight and designed for operational by two staff
- Heavy duty threaded connections enabling rapid assembly and disassembly on site
- Developed for use in remote and difficult to access areas
- Enables retrieval of virtually undisturbed samples in steel sampler or PVC liner
- Capable of sampling to depths of around 10m in most ground conditions
- Compatible with our sacrificial Lost Cone system for shallow borehole installation.
- On-site training offered with every set.

Peat Probes



A 120 cm Peat Probe or Utility Probe to determine the depth of peat

- Light and strong
- Extendable with 94cm extension rods
- Easy to use
- Flexible with multiple applications

Augers, Gouges & Probes

Quick and simple to use, the humble soil auger is an essential tool for those involved with soil research and management. Ideal for soil mapping; suitability reviews; root, fertilisation, clay and paleontological research – all with minimal disturbance. Our gouges are designed for ease of use, and come in a variety diameters and lengths. Some have a built-in step that allows you to add more pressure to drive the probe into the soil. Also, options available with or without liners.

- Single piece augers or a modular system offering improved versatility for differing ground conditions and sampling depths
- Gouges to take samples in the toughest of conditions
- Augers and extensions for all soil types – sands, silt, clays, gravel and peat
- Options for disturbed and virtually undisturbed soil and sediment samples
- Lightweight and simple to use
- Research equipment capable of sampling in the toughest ground conditions
- A variety of auger heads available for different soil types
- Fast and easy to use
- Rubber covered handles made of durable carbon steel have an open-gear mechanism that allows for easy cleaning of the gear and cog.
- Quick connect ratcheting handles allow for more effortless augering
- Left-handed augers, extensions and cross-handles are avaialable
- Easy to clean and very strong
- Available in sets or individually, depending on budget and need
- Perfect shape for optimal drilling
- Rapid and strong Hex Quick Pin extensions.

Auger heads

Ratchet handle

Step gouge

Soil recovery augers

Multi-stage core sampler

Open-faced auger head

Sediment & Soil Sampling

Split Core Sampler

For the easy extraction of almost undisturbed soil samples for immediate examination and testing. Comprising of a vertically split cylinder that makes the extraction of soil cores easier and quicker by reducing the chance of disturbing the sample.

If your work involves:

- Soil profile description and classification
- Sampling above groundwater table
- Sampling below groundwater table
- Archaeological soil research
- Environmental soil research

Then our Split-Core Sampler:

- Allows for the easy extraction of soil cores
- Reduces the chance of disturbing your soil cores with a vertically split cylinder
- Can be used with plastic, stainless steel or aluminium liners and caps to collect undisturbed samples for laboratory analysis
- Manufactured from strong 300-series stainless steel with the core tip made from 400-series stainless steel
- Can be extended to collect longer samples
- Durable interlocking sides held together by a vented top cap
- Split-core samplers comprises of a cup set, cap, plastic liner, two end caps, universal slip wrench, and an auger tip and/or core tip, depending on your requirements.

Russian Peat Borer

An easy to operate system to collect samples at different depths in sediment and wet soils. Designed to take samples below the groundwater level, the side filling chamber is inserted into the ground in the closed position and, once the target depth is reached, the handle is turned to capture your sample and closed again. Extensions with Hex Quick Pin connections.

Samples both saturated and unsaturated material to 2.4 m

Stainless Steel construction for use in all soil types, including young peat and sediment

Simple gouge with flap principle

No loss of sediment

Takes point samples at any depth

Easy to operate and clean

Clever design for sample retention & insertion

Collects uncompressed cores in poorly decomposed woody peat

Design means water plant roots will be pushed aside

Easy to operate & clean

Set includes enough extensions to go to 2.4m. Additional 1.2 m extension rods are available to go deeper

Supplied with hard carry case.

Dredges

Dredges come in different shapes and sizes for surface sampling of river and lake beds, giving you a semi-disturbed sample for a quick indication of sediment type. Suspended by wire for quick and easy deployment. Sizes range from 1 to 2.7 litres capacity. These dredges are easy to clean and decontaminate as they are made from stainless steel.

The Ekman Dredge is a soft sediment sampler. Sediments must be free from debris and plant growth to take a sample from soft top layers. Spring loaded jaws prevent loss of material. A sample can be viewed through an opening in the top before the sample is retrieved. The 3.5 litre sampler comes with synthetic line to reach a depth of 30 m and is equipped with a drop-weight system so that sampling can be carried out at any depth.

Dual purpose soil reovery gouge

Bulk Density Soil Sampling Ring Kit

If you are looking for soil sampling equipment for:

- Soil suitability research
- Educational purposes
- Root research
- Plant growth studies
- Crop yield research
- Soil erosion studies
- Soil sampling for agricultural and fertilisation research

The Bulk Density Soil Sampling Ring Kit contains everything needed to take accurate core samples. This is a unique sampling set for samples to a depth of one meter. These samples represent the soils natural conditions and, determining the bulk density of the soil which can be used to improve crop growth.

ideal for sampling the soil surface, in auger holes or in profile pits. Made from Stainless Steel to collect an undisturbed soil sample. Compact slide hammer for ease of use and quick insertion into the soil to a depth of 92 cm for laboratory studies. The volume of the soil rings is 90.6 cubic centimeters. from this known volume and the weight of the sample liner, the bulk density of the soil sample can be calculated.

Soil Moisture

Pico Soil Moisture Probes

With high-tech, integrated TDR technology. These highly sophisticated, fast and accurate sensors are ideal for monitoring soil moisture, temperature and electrical conductivity in soils. Uniquely, using TDR evaluation, they deliver results in a volumetric basis without the need for complicated laboratory measurements.

- Highly sophisticated technology
- Fast and accurate measurements
- Onsite measurement of different soil types
- Measures water content, temperature, electrical conductivity and salinity
- Sensor networks of up to 3 km length are possible
- A small diameter probe for installing in pots
- Precise measuring results even in heterogereous and skeletal soils
- Probes unaffected by high temperatures of conductivity
- Includes an integrated temperature sensor
- SDI-12 interface
- Measuring range of 0 to 100 volume %
- Measuring volume from >250 ml to 1250 ml
- IP68, robust, reliable and proven for long term installations
- Interchangeable rods
- Installation can be vertically or horizontally
- Precise measurement even in adverse conditions
- Compatible with vanwalt Data Collection systems.

Pico HD2 Meter

The Pico HD2 Meter is the mobile reading device for Pico Soil Moisture Probes. Easy to use and a mobile solution for soil moisture measurement. Control the quality of your soil on site with accurate and clear onsite results displayed immediately. A reliable and practical determination of Soil Moisture, Temperature and Conductivity.

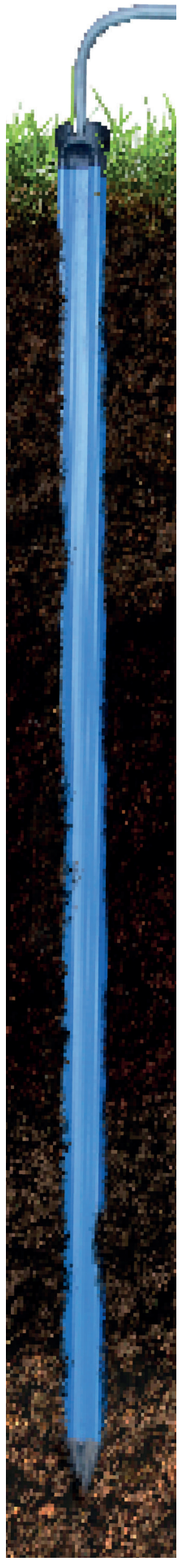
PICO-BT Control & Read-Out Unit

The PICO-BT is an innovative solution for the mobile control and read out of your IMKO soil moisture sensors using Bluetooth Technology©. Soil moisture data available via an Android smartphone or tablet. The PICO-BT is designed for robust applications and site work. It works accurately and reliably, even under extreme conditions.

Pico Profile

Pico-Profile Soil Moisture Probe is an easy and modular instrument for the precise measurement of moisture and salinity in selected soil profiles. Using TRIME radar technology the Pico-Profile is ideal for research to control irrigation, to create soil and water balance models and to check the saline load in different soil depths.

Robust and watertight the profile is easy to configure, with up to 10 units to measure selected soil horizons. Long life and extremely durable the system is compatible with the Van Walt Data Collection systems. using RS485 or SDI12 interfaces to allow for data collection.



Gropoint Profile

The GroPoint Profile is a multi-segment Soil Moisture Profiling Probe. Used for the cost-effective measurement of volumetric water content over multiple depths of soil. Because it uses a single probe it simplifies soil moisture measurement at different depths. It also eliminates the cumbersome excavation required for multiple soil moisture sensors placed at different depths.

The GroPoint Profile is based on the field-proven Time Domain Transmission (TDT) method for reliably measuring changes in soil moisture and temperature. A variety of different profile lengths are available to easily suit your project requirements. The GroPoint Profile can also connect easily to our vanwaltDataHub telemetry system which makes it ideal for remote monitoring.

- Simplify the measurement of Soil Moisture at different depths with multiple readings from a single probe
- Scientific grade accuracy with long-term stability
- Repeatable Accuracy
- Low power consumption so suitable for remote, independant installations
- Maximum durability
- Eliminates the need for multiple sensors and cabling systems
- Eliminates the need for soil excavation to position multiple probes at different depths
- Simple, quick installation with minimal soil disruption
- Designed for vertical installation
- Measures across the entire length of the probe, averaging the sol moisture and temperature in each segment
- One SDI 12 address is used to read all segments making a simple installation
- Optional RS-485 output
- Analyse water movement through the soil continuously
- Patented TDT5 technology
- Fully potted electronics for excellent durability
- Fully compatible with vanwaltDataHub, vanwaltDataSlave and vanwaltCONNECT telemetry options.

Bespoke Soil Research Networks

Increasingly we are being asked to put together monitoring solutions that incorporate several different parameters like water level, water quality, soil moisture, water flow and soil quality parameters. These, more complex requirements, are typical in projects like flood alleviation schemes, water extraction monitoring, climate change studies and mineral exploration feasibility studies.

Van Walt's Data Collection telemetry systems offer options for configurations from single soil moisture monitoring points to fully integrated telemetered solutions for multi-point, multiparameter installations.

Developed in-house to our own specifications and manufactured in England, throughout the process we have been mindful of price, security, adaptability, location, reliability, consistency and accuracy. Data collected onsite can be accessed via our vanwaltCONNECT software service or directly to your FTP server.

For more information on our bespoke solutions talk to us on +44 (0)1428 661 660 or email sales@vanwalt.com

Soil Science & Soil Testing

From the field to the laboratory our soil science equipment delivers accurate results time and time again. Equipment to measure soil moisture, soil solution, soil pH, soil Redox, soil gas, soil erosion, plus a collection of laboratory equipment to measure Soil Characterisation.

Rhizons

Our Rhizon Samplers are very useful and are the soil researcher's favourite in the UK and many parts of Europe for soil solution sampling projects...

- Plant uptake of soluble nutrients as nitrate
- Solubility of metals in soil
- Transport of soluble components in soil
- Accumulation of salts, etc.
- Environmental research.

Specifications

Macro Rhizons

Consists of 9 cm porous material with a 4.5 mm diameter outside, strengthened by a glas

Sampling is done with a syringe

Yield in water is about 30 ml

The yield in wet soil is typically 7 ml in 0.1 – 2 hours, depending on soil properties

Acceptable pH: 3 – 12, also depends on the corrosive properties of the soil solution

Life expectation > 6 months (not frost resistant)

Can extract soil solution from depth > 10 m

Can be extended using PVC pipe

Micro Rhizons

Bubble point > 2 bar (0.2 MPa)

Yield in water: 1 bar pressure differential: > 1 ml/min. With a 10 ml vacuum tube the yield in soil is typically 7ml in 1-16 hours (over-night), depending on soil properties

Diameter of the porous tube is 2.5 x 1.5 mm

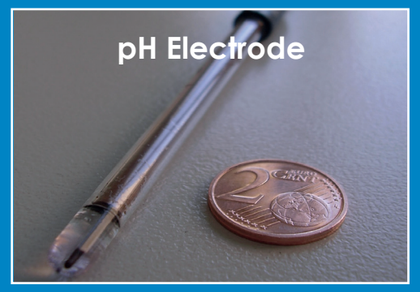
Diameter of the PVC tube is 2.7 x 1.0 mm

Volume of the lumen 0.2 ml, total dead volume 0.5 ml

Acceptable pH: 3 – 12, depends on corrosive properties of soil solution

Life expectation 6 months (not frost resistant).


Redox Electrode


pH Electrode

Redox Electrode

This on-site Soil Redox Electrode measures the redox potential in soils. Its unique design allows permanent operation in soils even in the harshest environments. The Soil Redox Electrode has got a small, normalized platinum surface for improved reproducibility ensuring accurate measurements.

- Permanent application in soils
- Small dimensions
- Suitable for both field and laboratory applications
- Normalized platinum surface for improved reproducibility
- Frost resistant
- Low maintenance
- Compatible with vanwaltDataHub & vanwaltDataSlave.

pH Electrode

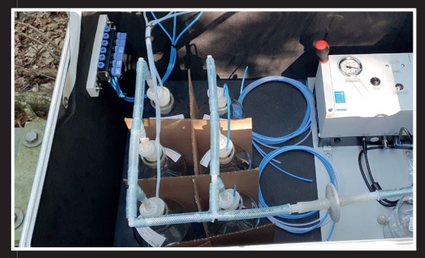
The first pH electrode for soils for continuous on-site pH soil monitoring. Compatible with vanwaltDataHub and vanwaltDataSlave (SDI-12 Interface) to provide high quality, accurate pH data in soil. The pH soil electrode measures the pH value, one of the most relevant information for soil properties and performance.

It works simultaneously with a separate reference electrode that protects it from accelerated aging and extends durability.
The unique frost resistance feature ensures permanent application in all soil types.

- Extended durability due to the separate reference electrode
- Suitable for both field and laboratory
- Frost resistant, long-life and durable
- Low maintenance
- Works in conjunction with redox electrodes in the same circuit.

Soil Solution Plates

For soil water extraction, especially suitable for nitrates and phosphates. These unique suction plates have area-related sampling ideal for studying solute concentrations and solute fluxes in soils.



Soil Laboratory

We offer a range of laboratory equipment for soil classification, characterisation and monitoring, including:

- Infiltrometers
- Leachate Collection Columns
- pF Laboratory Stations

On these or any other equipment featured in this brochure contact us for more details and specifications.

Ceramic Cups

Porous Ceramic Cups for sampling soil pore water from the unsaturated zone. Soil water is extracted at required depths and stored in the ceramic cup for collection and analysis.

Gas Vapor Probe Kit

The Gas Vapor Probe Kit with Dedicated Tips is excellent for monitoring and sampling hydrocarbon spill sites. It uses a slide or electric rotary drive hammer drill to insert a stainless steel tip to the required sampling depth.

TensioMark®

To measure soil water tension from pF 0 up to pF 7 (1 up to 10,000,000 hPa). A maintenance-free and frost resistant instrument that provides a fast response to moisture changes in the soil to help identify the best growing conditions for plants.

- Accurate, maintenance free & easy to install
- Matric potential sensor covers complete measuring range (pF 0-7; 1-10.000.000 hPa)
- Suitable for most environments
- Frost resistant
- Unlimited measuring range (no measurement gaps in summer due to dehydration)
- Fast response to moisture changes
- Measurement of soil temperature available in certain models.

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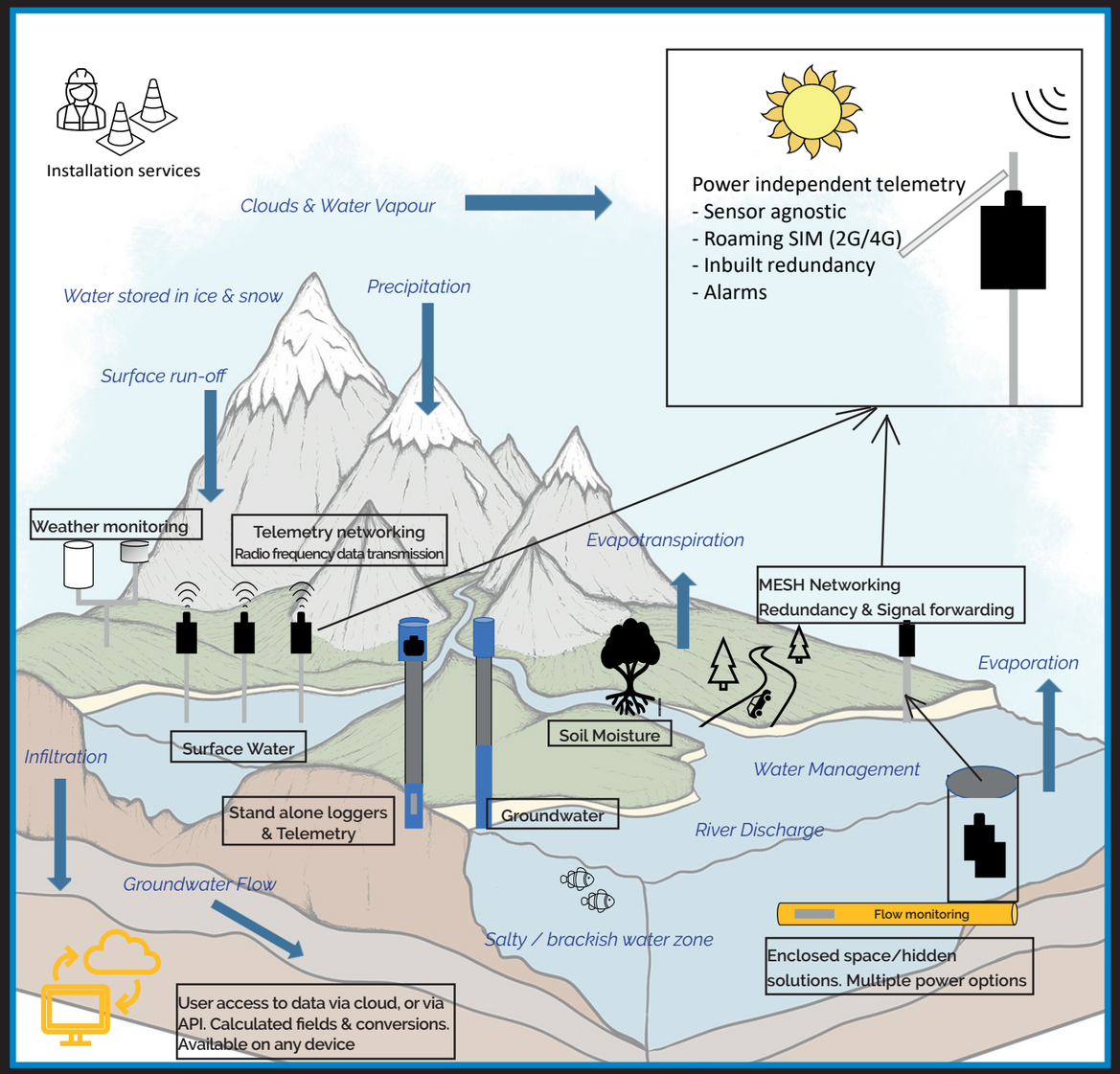
equipment for soil and water research

Data Collection

We can provide Data Collection solutions for all environmental monitoring requirements and Soil Research can be part or all of a telemetered network.



We have used our 40+ years equipment and site experience to develop a highly versatile, secure and robust Data Collection Telemetry System. Uniquely it works across a range of sensors - manufacturers and parameters - to create solutions for single monitoring points to complex, integrated multi-parameter and multi-point installations. We offer support in planning your requirements; offering suitable sensor solutions and cost effective datalogger options; site installation and after-sale support for the duration of your project.

Our equipment is rugged, reliable and site ready. We have harnessed technology to deliver equipment that works - in the harshest environments - to deliver the data you need. It has been designed, specified and made, either here at our premises or by other UK manufacturers under licence, we have concentrated on where we identified gaps in supply or where the alternatives were not good enough for the demands of fieldwork or too restrictive when it came to different parameters to measure.

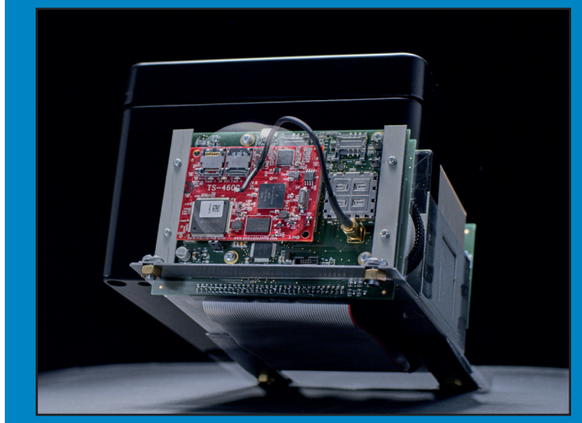
www.vanwalt.com | sales@vanwalt.com

vanwaltDataHub

The vanwaltDataHub is a self-powered, flexible system of electronics, conveniently packaged in an IP rated, heavy duty aluminium enclosure. The vanwaltDataHub performs as a data-logger, so collects data from environmental and other sensors. Because it organises the data for distribution or sharing through on-board memory, radio frequency, GPRS or Satellite portals, it is extremely flexible.

The data can be viewed using our vanwaltCONNECT software or transferred in different formats and automatically forwarded to a customer's FTP server. Each unit has multiple and simultaneous inputs including SDI12, Modbus, Pulse, Analog, Relay and Digital. With robust data redundancy, power independence and an internal, non-volatile memory, it is a powerful and unique data collection and data distribution tool.

Each unit has multiple and simultaneous inputs including SDI12, Modbus, Pulse, Analog, Relay and Digital. With robust data redundancy, power independence and an internal, non-volatile memory, it is a powerful data collection and data distribution tool which is constantly evolving and improving to become an even more powerful Sensor to Desktop telemetry system.



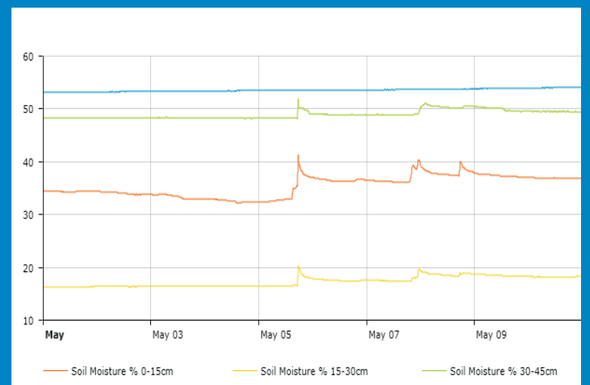
- Multiple, simultaneous inputs and outputs
- Self-powered, flexible system of electronics
- Conveniently packaged in an IP rated, heavy duty aluminium enclosure
- Data is organised for distribution or sharing through on-board memory, radio frequency, GPRS or satellite portals
- Modbus, SDI-12, Analog and digital I/O are provided to connect sensors singly or in daisy chain
- The vanwaltDataHub instructs, powers, interrogates and collects data from onsite sensors
- Data is stored on non-volatile memory and backed up for redundancy on an internal flash SD card and, for convenience, data can be downloaded by an external, vandal-resistant, industrial grade USB drive.
- Data can be downloaded by cable, radio frequency transceiver, GPRS, or simply by the removal of the SD card.
- Interfaces with a multitude of sensors to measure environmental, agricultural, archaeological and meteorological parameters such as water level, pH, EC, redox, electrical conductivity, temperature, dissolved oxygen, rainfall, water flow and soil moisture
- Performs as a powerful and flexible standalone, power-independent datalogger.
- Interfaces seamlessly with our proven and highly flexible vanwaltCONNECT data collection and sharing server and software.
- Supplied as standard with on-board non-volatile logging memory, SD Card memory, 2G/4G connectivity, batteries and solar panel. Optionally it can be supplied with a radio frequency
- 2 Year Manufacturer's Warranty.

For customers that do not want use the vanwaltCONNECT software the DataHub can be enabled to automatically forward data to a customer's FTP Server. Data can be transferred in .csv; .dat; .XML or .JSON formats and bypasses Van Walt's systems entirely.

vanwaltCONNECT

vanwaltCONNECT is the software that drives our Sensor to Desktop Data Systems. It delivers your data directly to your desktop, tablet or mobile phone and we have made it flexible, secure and intuitive.

vanwaltCONNECT can be configured to your specific requirements to allow you to securely view, manipulate and set alarms from your data. Data is uploaded at specified frequencies and is completely bespoke to your requirements.



vanwaltDataSlave

The vanwaltDataSlave is unique, it operates with multiple sensors across industry sectors and interfaces using either by MODBUS or SD1-12. Inside the DataSlave is a radio "tile" which enables it to communicate with a PC or a vanwaltDataHub wirelessly over a distance of up to 10 km line of sight. It is ideal for difficult or restricted access sites. The vanwaltDataSlave sits at location and transfers sensor measurements using radio frequency.

- Data logging with wireless data recovery
- Cost-effective for telemetered networks
- Licence free
- Subscription free
- Long range
- Designed to work independently or as part of a network
- Integrates datalogging into any sensor to allow recovery of that data wirelessly
- Can connect wirelessly to telemetry systems
- Perfectly suited for sensors deployed in difficult to access locations or restricted areas
- Can be daisy-chained with up to 30 units automatically connected to a telemetry hub like the vanwaltDataHub
- Waterproof to IP68
- 3-year battery life
- Powered from two AA type batteries
- Switchable +12 V sensor output supply
- Internal battery voltage measurement
- Sensor external power voltage measurement
- In-built connectivity to Radio Gateway
- Secure wireless comunication
- Low power sleep mode with automatic wake up at required measurement interval & upload
- Transmit acknowledgement feature
- Internal datalogger
- Configurable via telemetry, Radio Modem Tile or Software application
- Accepts larger, external battery input (12V) for higher power applications
- Designed by and manufactured in the UK under licence for Van Walt Limited.

Data Collection Telemetry

Site Inspections, Installation Service & Monitoring

As part of our Data Collection Telemetry service we like to work with customers to establish the best solution for your requirments. By having a clear understanding of your objectives, site conditions, accessibility and signal we can help you put together the best design and equipment options.

An element of this is our full installation service. The Van Walt team is fully accredited (CHAS), trained and insured to come on site to install your equipment. We can then then train your operatives not just on how the equipment works, but also for on-going maintenance, battery changes and keeping solar panels clear. We can also decommission system installations so your equipment is preserved for future projects, if appropriate.

As part of the service we monitor daily any alarms that are triggered by your equipment, reporting back to you any issues. More comprehensive service agreements can be provided, including annual inspections, battery changes and equipment service and checks.

Data Collection Accessories

vanwaltDataRelay

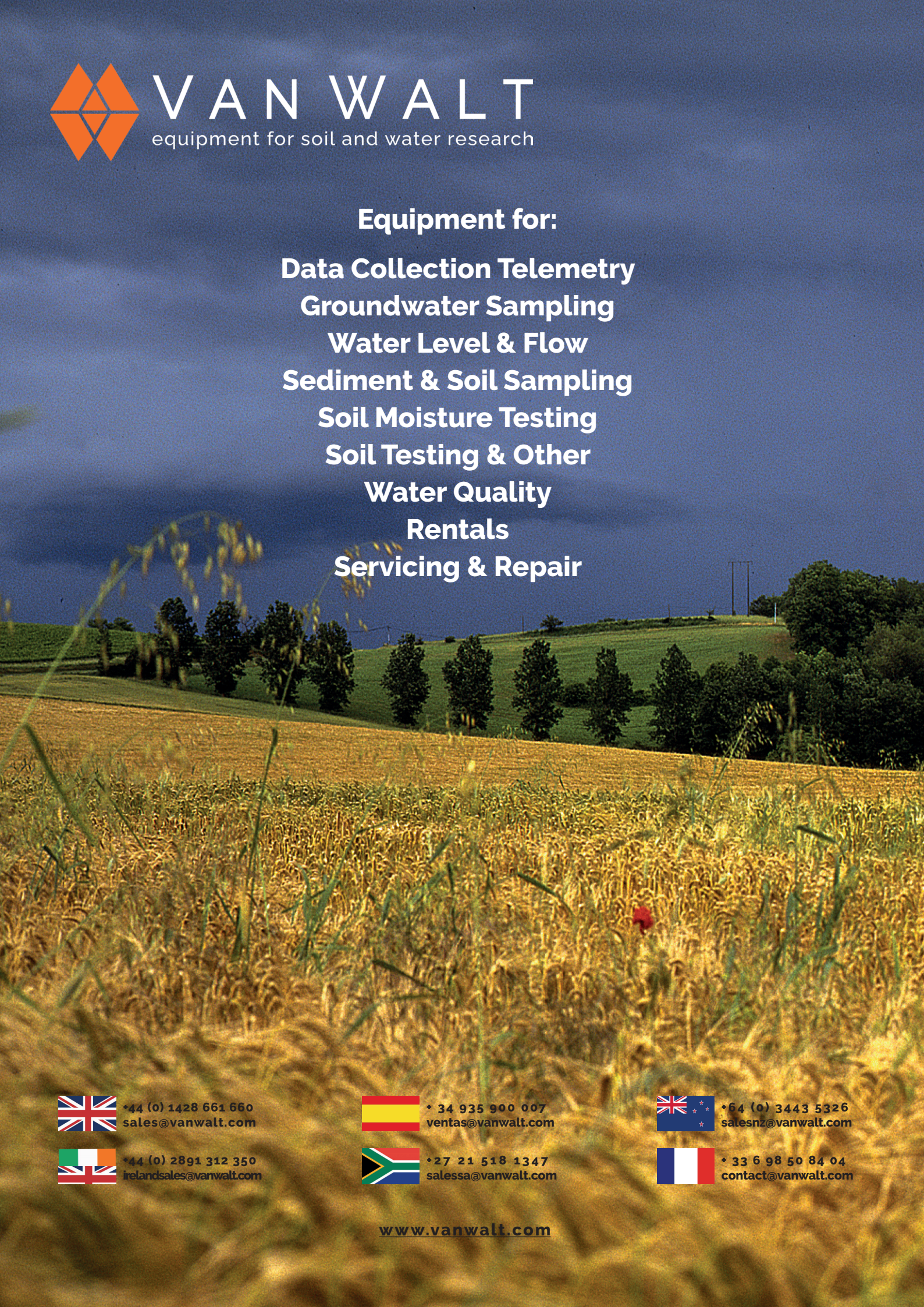
A relay node for our vanwaltDataSlave networks, developed and manufactured in the company. The vanwaltDataRelay can be used to extend the range of your system, improve the robustness of the network and enhance efficiency and reduce costs by allowing a larger network of vanwaltDataSlaves rather than adding more costly vanwaltDataHubs and on-going network subscriptions. The range of the vanwaltDataRelay, with good line of sight, is 10 km. The unit takes user replaceable AA Energiser Lithium cells. It is robust and discreet so ideal for urban areas, rural, woody locations, as well as in caves, tunnels and areas with limited access.

Battery Pack

Developed and manufactured by Van Walt Ltd to extend the battery life of the vanwaltDataSlave when connected to sensors.

Configuration Tool

Developed to program the vanwaltDataSlave.



VAN WALT

equipment for soil and water research

Equipment for:

Data Collection Telemetry
Groundwater Sampling
Water Level & Flow
Sediment & Soil Sampling
Soil Moisture Testing
Soil Testing & Other
Water Quality
Rentals
Servicing & Repair

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