Design, Manufacturer and Exporter to 76 Countries of Buried Pipeline Inspection Equipment. 36 Years Experience in DCVG Technology

DC VOLTAGE GRADIENT TECHNOLOGY & SUPPLY LTD

MARKET LEADERS IN ECDA SURVEY EQUIPMENT + SOFTWARE + CATHODIC PROTECTION RESEARCH

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Technical Data Sheet

Quantum CIPS Equipment

Quantum CIPS Meter/Datalogger
Cat. No.: Q002

- Quantum Data Logger Maximum Voltage Range plus/minus 25 Volts.
- Voltage Range variable, plus or minus 25V, 10V, 5V, 2.5V, 1V, 500mV, 250mV, 100mV, 50mV, 25mV, and 10mV.
- Quantum Data Logger synchronised using the one second Satellite Pulse and alternatively on the front edge of the pulse.
- The Quantum Data Logger is synchronised with the CP Interrupters, both being controlled by NAVSTAR multi-satellite time pulses.
- The actual ON/OFF pulse is viewed on the Quantum Data Logger LED Screen at actual time of taking potential measurements.
- The time of measurement after switching OFF and ON the CP can be varied to exclude Anodic or Cathodic spike errors.
- A T shaped indicator indicates the time location of the measurement on the pulse on the screen
- The width of the pulse can be indicated as a check on Interrupter Synchronisation.
- In the CIPS mode the ON and OFF readings for every pulse of the CP system is recorded automatically. The reading is an average reading taken of many observations over a 150millisecond interval from the T marker location.
- The Quantum Plus Data Logger Memory at 32 Megabyte will hold more than 62,500 lines data. The normal Microsoft Excel program used to download can only accommodate 65,000 lines of data.
- The Number of Data Points Logged in the Quantum memory is given on the CIPS Screen.
- The actual values for ON and OFF potentials being recorded are given on the screen.
- The status of the GPS and type of synchronisation being used is indicated on the screen.
- A series of hot keys allow CIPS, Features, Pulse width, GPS or other Distance Measurement facilities to be rapidly selected.
- Epicentre CIPS measurements at DCVG indications can be independently logged from conventional CIPS data.
- When connected to a GPS aerial the date and time of day plus GPS Location of all measurements is recorded every 5 seconds. This allows Surveyor performance to be monitored
- The drift in Interrupter synchronisation is less than 1 millisecond in 5 minutes. The Interrupters and Quantum check and adjust synchronisation every 5 seconds. Drift of synchronisation with Quantum and its Interrupters is not an issue as it is accurately monitored and rechecked.
- Common Pipeline Right of Way Features (Test Posts, Fences etc) built into the Quantum Data Logger Memory can be
- The Quantum Plus Data Logger will operate for several days between charges. The Interrupters will operate for 36 hours between charges.
- The download Baud Rate for transferring data from the Quantum Data Logger to a PC is 57,600.
- Made in United Kingdom.

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Pictures of the Quantum CIPS Meter/Datalogger on next page

Quantum CIPS Meter -Front Profile

Quantum CIPS Meter -Right Profile

Quantum CIPS Meter -Left Profile

GPS Satellite Aerial
Cat. No.: L005-QSA

- Satellite aerial for logging on to the satellites. GPS sensor including embedded receiver and antenna.
- Used to track multiple satellites at a time whilst providing fast time-to-first-fix, one second navigation updates and low power consumption.
- This GPS sensor includes the capability of FAA Wide Area Augmentation System (WAAS) differential GPS or RTCM corrections yielding submeter up to 3-5 metre position accuracy.
- Designed to withstand rugged operating conditions and are waterproof to IEC60529IPX7, immersion in 1 meter of water for 30mins.
- High accurate one pulse per second (PPS) output for precise timing and measurements. Pulse width is configurable in 20-millisecond increments from 20ms to 980ms with 1ųs accuracy.

GPS Satellite Aerial

120/240V Battery Charger
Cat. No.: L012

- Battery charger comes in small black plastic box with a lead out either end.
- At rear of battery charger is cable for connection to mains electricity.
- At other end is black panel with the mains voltage range switch, 120 or 240V AC selection.
- Also, a one ampere fuse for protection and red LED charging light.
- Low voltage cable at front of black panel that has a two-pin figure eight plug for connecting to equipment for charging.

120/240V Battery Charger

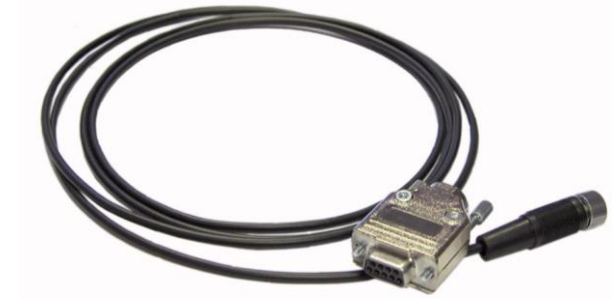
3-Way Battery Charger Adaptor
Cat. No.: L013

- Used to charge multiple items of equipment (up to three items) at a time when plugged into the battery charger. Figure of eight socket is sited on the bottom side of the small black casing for which the battery charger must be plugged into to charge three items at a time. Three Sheathed cables with figure of eight sockets on each end situated on the top of the small black casing, which connects to items in the set to be charged.

3-Way Battery Charger Adaptor

Quantum to RS232 Download Cable
Cat. No.: Q011

- Sheathed cable with RS232 download cable on one end and socket on the other end to attach between the Quantum CIPS Meter/Datalogger and computer via an RS232 to USB Adaptor.
- Black/Silver connection end to plug into the Quantum CIPS Meter/Datalogger.
- Used for downloading survey data.



Quantum to RS232 Download Cable

USB to RS232 Adaptor
Cat. No.: USBR-1

- Adaptor to connect the Quantum RS232 Download Cable to the computer for downloading survey data stored in the Quantum CIPS Meter/Datalogger.
- The Driver CD is no longer supplied on a CD but can be downloaded, so please contact DCVG Ltd for this.

USB to RS232 Adaptor

Probe to Probe Connection Cable
Cat. No.: Q016

- Sheathed cable with banana plugs on both ends.
- Used to connect between the probes or between the backpack and the Quantum CIPS Meter/Datalogger.

Probe to Probe Connection Cable

Overline to Remote Earth Cable
Cat. No.: Q033

- 15metre Sheathed cable with banana plug on one end to connect to the Double Connector or Single Connector Handle and socket on the other end to attach to the Quantum CIPS Meter/Datalogger.

15metre Remote Earth Cable

Backpack Battery to Quantum Cable Cat. No.: Q019

- Sheathed cable with a push fit socket connection to connect one end to the Backpack and a screw fit twist connection to connect to the Quantum CIPS Mater/Datalogger.

Backpack to Quantum Signal Cable

Right-Hand & Left-Hand Connection Leads
Cat. No.: L006 – Right Hand Connection Lead
Cat. No.: L007 – Left Hand Connection Lead

- 1 metre Long sheathed shielded cable fitted with a 3-pin connection and banana plug for connection Single or Double connector handles / reference probe to Quantum CIPS meter/Data Logger.
- . Comes in a right- hand side cable and left-hand side cable.

Right-Hand & Left-Hand Connection Cables

Shorting Out Lead
Cat. No.: Q017

- Sheathed cables with banana plugs on each end to short out channels of the Quantum CIPS Meter/Datalogger not logging data so you do not get any floating potentials.

Shorting Out Lead

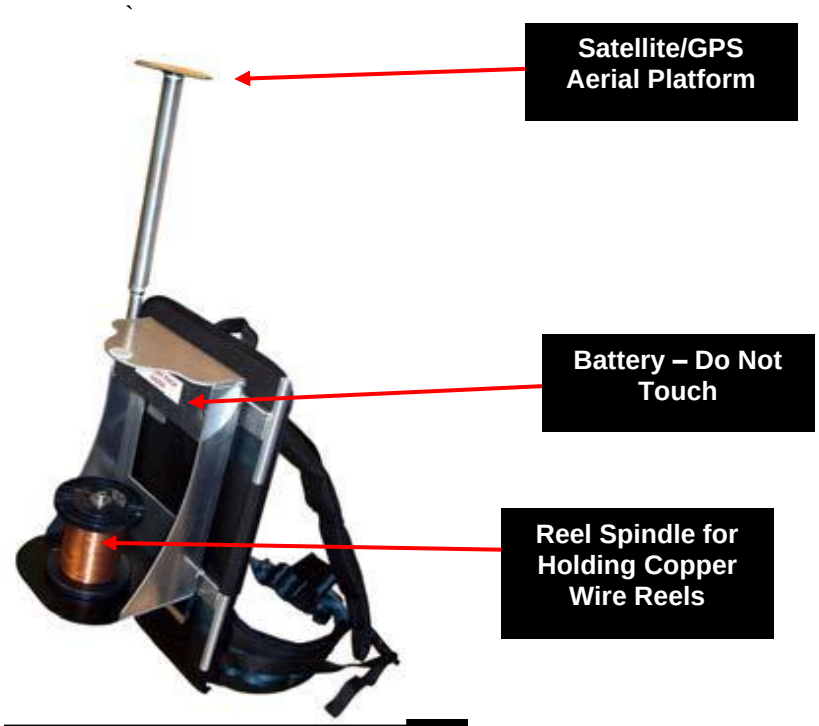
Backpack to Quantum Signal Cable
Cat. No.: Q015

- Sheathed cables with banana plugs on each end to short out channels of the Quantum CIPS Meter/Datalogger not logging data so you do not get any floating potentials.

Backpack to Quantum Signal Cable

Quantum CIPS/DCVG Backpack
Cat. No.: Q018

- Quantum CIPS/DCVG Datalogger Backpack – Has an extra 12v battery to power the GPS unit.
- Made from Aluminum which is light weight and durable.
- Holds the copper CIPS 30swg wire which fits on to a DIN 125 reel and holds about 5km of wire to connect to pipeline via test post which is then connected into the Quantum CIPS meter/datalogger to carry out a CIPS survey.
- Double Backpacks are available to hold two copper wire reels to connect to a Stationary datalogger and to connect to an ordinary Quantum CIPS meter/datalogger.



Quantum CIPS/DCVG Backpack

Backpack Battery Charger
Cat. No.: Q009

- Backpack battery charger comes in small black plastic box with a lead out either end.
- At rear of battery charger is cable for connection to mains electricity, without plug.
- Low voltage cable at front of black panel box that has a connection socket for connecting to the backpack for charging.
- LED charging light.

Quantum CIPS/DCVG Backpack Charger

Single Connector Handle
Cat. No.: Q004-S

- Single Connector Handle used for connecting Reference Probe to Quantum CIPS Meter/Datalogger.
- Single pole 3 mm connection socket point for right-hand or left-hand connection leads to connect single connector handle/reference probe to Quantum CIPS Meter/Datalogger.
- At bottom of single connector handle is a brass threaded socket that allows the copper/copper sulphate reference probe to be screwed into the Single Connector Handle to make electrical connection.

Single Connector Handle

Double Connector Handle
Cat. No.: Q004-D

- Double Connector Handle used for connecting the Reference Probes together and to connect the Reference Probe to the Quantum CIPS Meter/Datalogger.
- Two Single pole 3 mm connection socket points for right-hand or left-hand connection leads to connect single connector handle/reference probe to Quantum CIPS Meter/Datalogger and to connect the two Reference Probes together.
- At bottom of the Double connector handle is a brass threaded socket that allows the copper/copper sulphate reference probe to be screwed into the Double Connector Handle to make electrical connection.

Double Connector Handle

Wire Winding Spindle Bolt
Cat. No.: Q027

- Stainless steel wire winding spindle to be used to wind copper wire on to empty DIN125 reels using a pillar drill (not supplied).
- With bottom threaded section.
- Comes with stainless steel washer and nut.

Wire Winding Spindle Bolt

Wire Winding Spindle Bolt Nut & Washers
Cat. No.: Q027

- Stainless steel nut and washer to fit on to the Wire Winding Spindle Bolt.

Wire Winding Spindle Bolt Nut & Washers

Empty DIN125 Wire Reel
Cat. No.: Q026

- Plastic empty DIN125 to hold maximum of 5km of 30SWG copper wire.

Empty DIN125 Reel

Wooden Probe Tip
Cat. No.: L010-S

- Standard wooden probe tip made from hardwood, oak. Used in the Reference Probe to make contact with the survey area.

Wooden Probe Tip

Probe Tip Holder
Cat. No.: L008

- Nylon Probe Tip Holder with thread used to hold the wooden probe tip.

Probe Tip Holder

PTFE Sealing Tap
Cat. No.: L011

- PTFE tape consists of a thread seal tape normally composed of a film tape that is waterproof.
- Used to make a tight waterproof seal between the wooden probe tip and the probe tip holder.

PTFE Sealing Tape

Probe Filler Bottle
Cat. No.: L014

- Probe Filler Bottle made from plastic. Comes with appointed spout and connected lid. Used to fill the reference probes with copper sulphate solution.

Probe Filler Bottle

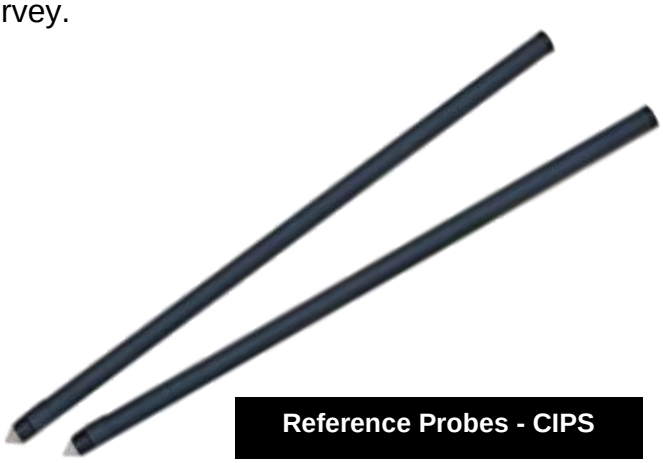
Jar of Copper Sulphate
Cat. No.: L015

- Laboratory grade powdered copper sulphate.

Jar of Copper Sulphate

Reference Probes – CIPS
Cat. No.: Q004

- ❖ 1metre Copper/Copper Sulphate Reference Probes made from hollow 100% copper tubing. ❖ Black Heat shrink applied to copper tubing.
- ❖ Black nylon top cap placed on top of stainless-steel thread for connection to Probe Single or Double Connector Handles.
- ❖ Probe tip holder along with a nylon washer screwed onto bottom copper thread and wooden probe tip inserted with PTFE tape to ensure a tight seal.
- ❖Copper/Copper Sulphate Reference Probe filled with saturated copper/coppersulphate solution prior to a CIPS survey and clean it out at the end of the survey.



Reference Probes - CIPS

CIPS Carry Cases with Blue Case Insert
Cat. No.: L016-CWBI

- ❖ Stormproof carry case for Quantum CIPS equipment, which is yellow or could be black or green in colour depending on availability with blue or grey foam insert, cut out to fit all components of the Quantum CIPS equipment set.
- ❖ Vacuum sealed to prevent moisture from coming inside the case

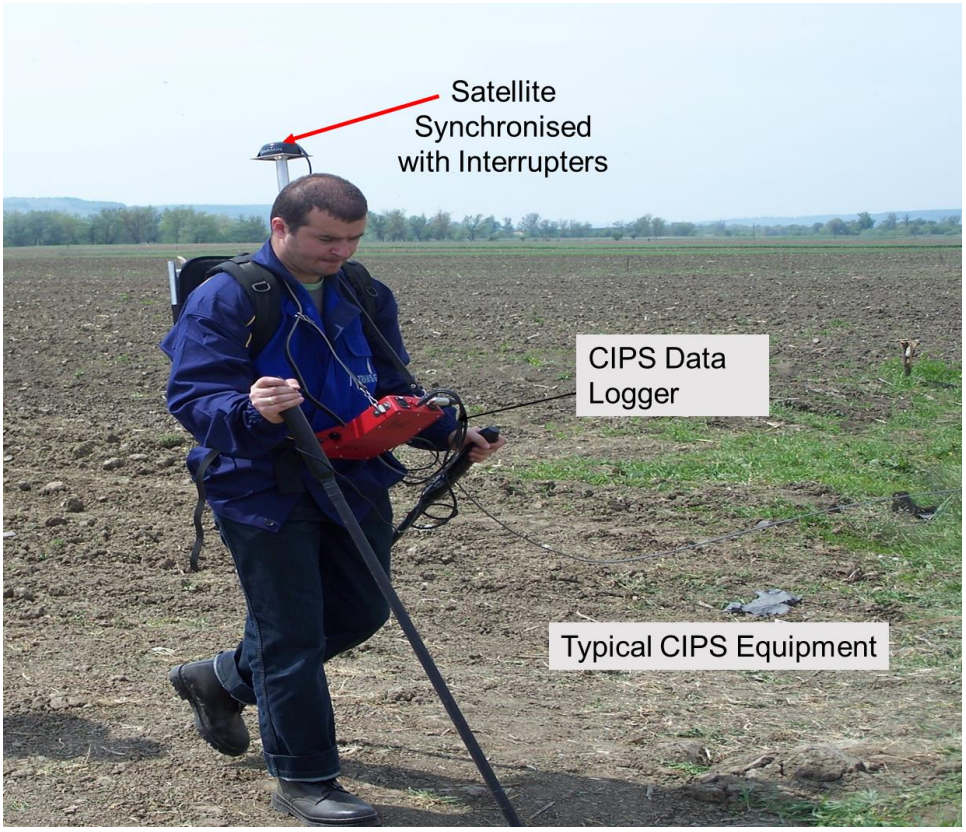
CIPS Carry Case with Blue Insert

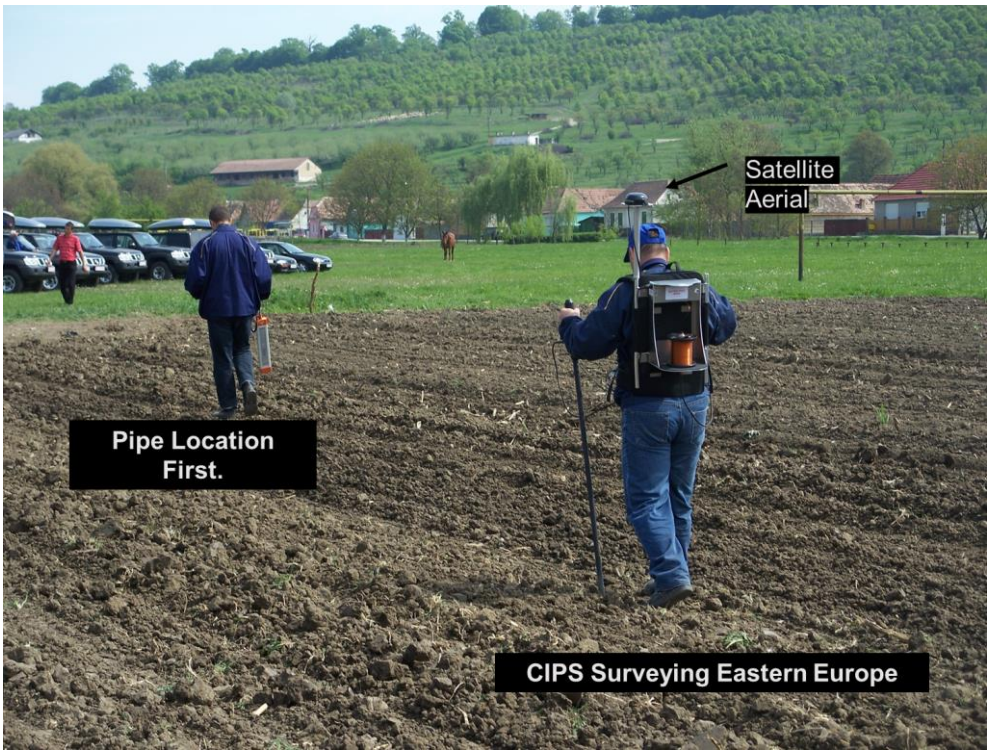
CIPS Reference Probe Carry Case
Cat. No.: L017Y

- Red waterproof carry case with handle and shoulder strap used to transport multiple reference probes. Zip on side of case.
- A maximum of 3 reference probes can fit in this case.
  - Outside Dimensions 117cm by 12cm x 12cm
- Quantity: 1x

CIPS Reference Probe Carry Case

Assembled Quantum CIPS Equipment





Position of the Quantum with neck and waist straps and the back pack and harness already on.

The picture shows the CIPS electrodes fully connected together and the instrument ready for use.