WESTERNEX

Magnetic Susceptibility & Conductivity

Magnetic Susceptibility & Conductivity

KT-10 Magnetic Susceptibility and Conductivity Meters

The KT-10 meters are a line of handheld instruments that measure the magnetic susceptibility and/or conductivity of a geological sample or core. The meters are available in circular and rectangular coil designs to measure large or small sized samples, respectively. The KT-10 meters produce repeatable results, and include features such as corrections for split and full cores, the ability to input information to correlate measurements to their appropriate depths, a built-in microphone to record voice notes, and the GeoView data management/visualization software. With its compact and rugged design, the KT-10 meters are ideal instruments for use in the field, core shack, or lab.

- Stand-alone units with display and data storage.
- High sensitivity for magnetic susceptibility (10-7 SI units with KT-10H models) and conductivity (1 S/m).
- Three modes of operation: discrete measurements, continuous scanning (20 readings per second), or borehole (correlate measurements to their depth in the borehole).
- Measure core split and full drill core, rock samples, outcrop, chips or powdered samples.
- Split and full core corrections for standard drill rod diameters (AQ, BQ, HQ, NQ and PQ) and non-standard sizes (2.4 to 12 cm).
- Data running average and standard deviation values displayed during discrete measurements; data averages and maximum values provided during scanning.
- Pin mode to measure samples with uneven surfaces (available with circular coil designs only).
- Built-in microphone to record voice notes with measurements.
- GeoView software to organize and visualize data on a PC.
- Compatible with Geobank Software (available from Micromine, *www.micromine.com*).
- Upgrades and support available via the internet.

KT-10 S/C (Circular Coil)

KT-10 v2 Magnetic Susceptibility Meter (Circular Coil)

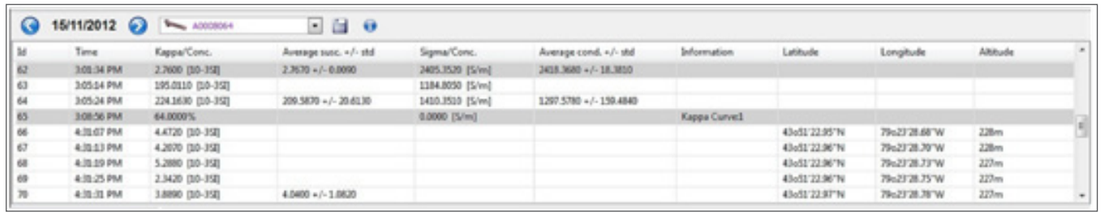
KT-10R v2 (Rectangular Coil)

KT-10R S/C Magnetic Susceptibility/Conductivity Meter (Rectangular Coil)

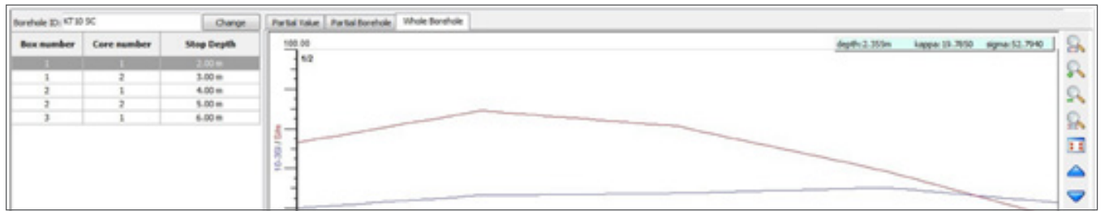
Magnetic Susceptibility & Conductivity

GeoView Software

GeoView is an easy-to-use data management and visualization software program that is compatible with all Windows operating systems. It enables users to download, store and view a KT-10 meter's data on a PC and export it to Excel. Data is organized by date or by instrument serial number, when there are data from multiple meters. Averaged readings, voice notes, and GPS positions (when paired with a Bluetooth GPS unit) can also be reviewed. The software can also be used as a data visualization tool. Numerical values from discrete measurements are displayed in a table format; data from scanned measurements are displayed as a graph.



Data Organization



Data Visualization

Magnetic Susceptibility & Conductivity Order Guide for KT-10 Consoles, Upgrades & Accessories

Dedicated Magnetic Susceptibility Meters

KT-10 v2	KT-10R v2	KT-10H
SKU: 1141-00501-C	SKU: 1141-00501-R	SKU: 1141-00526-C
▪ Circular coil design ▪ Sensitivity: 10-6 SI units ▪ Measurement range: 0.001 x 10-3 to 1999.99 x 10-3 SI units ▪ Pin mode available for measuring uneven surfaces ▪ KT-10 Plus (optional) [SKU: 1141-00531-A]	▪ Rectangular coil design ▪ Sensitivity: 10-6 SI units ▪ Measurement range: 0.001 x 10-3 to 1999.99 x 10-3 SI units ▪ KT-10R Plus (optional) [SKU: 1141-00531-A]	▪ Circular coil design only ▪ Sensitivity: 10-7 SI units ▪ Measurement range: 0.0001 x 10-3 to 1999.99 x 10-3 SI units ▪ Pin mode available for measuring uneven surfaces ▪ KT-10 Plus (optional) [SKU: 1141-00531-A]

SKU	DESCRIPTION
1141-00501-C	KT-10 v2 Magnetic Susceptibility Meter (Circular Coil)
1141-00526-C	KT-10H v2 Magnetic Susceptibility Meter (Circular Coil)
1141-00501-R	KT-10R v2 Magnetic Susceptibility Meter (Rectangular Coil)
	UPGRADES
1141-00531-A	PLUS OPTION - Increases magnetic susceptibility measurement range from 2 to 10 SI units
1141-00531-C	S/C OPTION - To enable the KT-10 console to simultaneously measure magnetic susceptibility and conductivity
1141-00531-D	Upgrade fee (Applicable for each upgrade performed on a previously purchased unit)
	ACCESSORIES
	Flat Magnetic Susceptibility Calibration Pads To be used with the KT-10 / KT-20 Magnetic Susceptibility and S/C Meters
1141-00514	Low Susceptibility Values (Typically 34 x 10-3 SI Units)
1141-00503	High Susceptibility Values (Typically 2,500 x 10-3 SI Units) (to be used with the Plus Option only)

Dedicated Conductivity Meters

KT-10 C	KT-10R C
SKU: 1141-00508-C	SKU: 1141-00508-R
▪ Circular coil design ▪ Absolute conductivity meter, calibrated using multi-point algorithm ▪ Sensitivity: 1 S/m ▪ Measurement range: 1 to 100,000 S/m ▪ Pin mode available for measuring uneven surfaces ▪ KT-10 Cx (optional) [SKU: 1141-00531-B]	▪ Rectangular coil design ▪ Absolute conductivity meter, calibrated using multi-point algorithm ▪ Sensitivity: 1 S/ m ▪ Measurement range: 1 to 100,000 S/m ▪ KT-10R Cx (optional) [SKU: 1141-00531-B]

SKU	DESCRIPTION
1141-00508-C	KT-10C Conductivity Meter (Circular Coil)
1141-00508-R	KT-10R C Conductivity Meter (Rectangular Coil)
	UPGRADES
1141-00531-B	Cx OPTION - Increases conductivity measurement range from 100,000 to 200,000 S/m
1141-00531-C	S/C OPTION - To enable the KT-10 console to simultaneously measure magnetic susceptibility and conductivity
1141-00531-D	Upgrade fee (Applicable for each upgrade performed on a previously purchased unit)
	ACCESSORIES
	Flat Conductivity Reference Pads to be used with the KT-10 C / KT-20 C Conductivity and S/C Meters
1141-00532-A	Low Conductivity Value (Typically 9 S/m)
1141-00532-B	Medium Conductivity Value (Typically 700 S/m)
1141-00532-C	High Conductivity Value (Typically 85,000 S/m)

Magnetic Susceptibility & Conductivity

Combined Magnetic Susceptibility/Conductivity Meters

KT-10 S/C	KT-10R S/C	KT-10H S/C
SKU: 1141-00525-C	SKU: 1141-00525-R	SKU: 1141-00527-C
▪ Circular coil design ▪ Sensitivity: Magnetic susceptibility 10-6 SI units ▪ Conductivity: 1 S/m ▪ Measurement range: Magnetic susceptibility: 0.001 x 10-3 to 1999.99 x 10-3 SI units ▪ Conductivity: 1 to 100,000 S/m ▪ Pin mode available for measuring uneven surfaces ▪ KT-10 Plus S/C (optional) ▪ KT-10 S/Cx (optional) ▪ KT-10 Plus S/Cx (optional)	▪ Rectangular coil design ▪ Sensitivity: Magnetic susceptibility 10-6 SI units ▪ Conductivity: 1 S/m ▪ Measurement range: Magnetic susceptibility: 0.001 x 10-3 to 1999.99 x 10-3 SI units ▪ Conductivity: 1 to 100,000 S/m ▪ KT-10 Plus S/C (optional) ▪ KT-10R S/Cx (optional) ▪ KT-10R Plus S/Cx (optional)	▪ Circular coil design only ▪ Sensitivity: Magnetic susceptibility 10-7 SI units Conductivity: 1 S/m ▪ Measurement range: Magnetic susceptibility: 0.0001 x 10-3 to 1999.99 x 10-3 SI units ▪ Conductivity: 1 to 100,000 S/m ▪ Pin mode available for measuring uneven surfaces ▪ KT-10H Plus S/C (optional) ▪ KT-10H S/Cx (optional) ▪ KT-10H Plus S/Cx (optional)

SKU	DESCRIPTION
1141-00525-C	KT-10 S/C Magnetic Susceptibility/Conductivity Meter (Circular Coil)
1141-00525-R	KT-10R S/C Magnetic Susceptibility/Conductivity Meter (Rectangular Coil)
1141-00527-C	KT-10H S/C Magnetic Susceptibility/Conductivity Meter (Circular Coil)
UPGRADES	
1141-00531-A	PLUS OPTION - Increases magnetic susceptibility measurement range from 2 to 10 SI units
1141-00531-B	Cx OPTION - Increases conductivity measurement range from 100,000 to 200,000 S/m
1141-00531-D	Upgrade fee (Applicable for each upgrade performed on a previously purchased unit)
ACCESSORIES	
Flat Magnetic Susceptibility Calibration Pads To be used with the KT-10 / KT-20 Magnetic Susceptibility and S/C Meters	
1141-00514	Low Susceptibility Values (Typically 34 x 10-3 SI Units)
1141-00503	High Susceptibility Values (Typically 2,500 x 10-3 SI Units) (to be used with the Plus Option only)
Flat Conductivity Reference Pads to be used with the KT-10 C / KT-20 C Conductivity and S/C Meters	
1141-00532-A	Low Conductivity Value (Typically 9 S/m)
1141-00532-B	Medium Conductivity Value (Typically 700 S/m)
1141-00532-C	High Conductivity Value (Typically 85,000 S/m)

Magnetic Susceptibility & Conductivity

KT-20 Scan Mode

3F-32 Large Diameter Sensor

IP/Resistivity Module with Small Sample Holder

Outcrop Measurements

KT-20 Physical Property Measuring System

The KT-20 is a handheld console with different modules for measuring the magnetic susceptibility, conductivity, chargeability and resistivity, and density of a sample. Its modular design allows the KT-20 to be available in many configurations of measurement capabilities, and new modules or upgrades can be added at anytime. A range of sensors with different shapes and frequencies are available for the KT-20. Users can interchange the sensors on the console, allowing the KT-20 to be adapted to different sizes and types of samples, or used in various applications. The KT-20 console includes a number of built-in features to increase the amount of information that can be added to a measurement record. These features include a GPS receiver to obtain coordinates of the measurement, digital camera to photograph the sample, a microphone to record voice notes, and a virtual keyboard to enter text notes.

Benefits

- Three modes of operation: single measurement, continuous scanner, and borehole to correlate measurement results to their depth in the borehole.
- Multiple sensor frequencies and shapes to measure magnetic susceptibility and conductivity. Sensors are interchangeable to adapt the KT-20 to different samples or applications.
- Curved sensors dedicated for core logging.
- IP/Resistivity Module enables the KT-20 to measure the chargeability and resistivity of geological samples. The module comes with either a Small or Large Sample Holder to facilitate measurements for various sample sizes.
- 3F-32 Large Diameter Sensor for soil investigations, mapping, and detecting shallow anomalies.
- View data in real-time on the KT-20's large LCD screen. Stored records can also be reviewed directly on the console.
- Split and full core corrections for standard drill rod diameters (AQ, BQ, HQ, NQ and PQ) and non-standard sizes (2.4 cm to 12 cm) for circular and rectangular sensors.
- KT-20 console features built-in GPS receiver, digital camera, microphone and virtual keyboard for users to include additional information with measurement results.

Magnetic Susceptibility & Conductivity

Applications

A modular design and interchangeable sensors give the KT-20 the flexibility to measure a wide variety of types and sizes of samples, or adapt the console for different applications.

- Drill Core – Curved sensors for measuring cylindrical core. Their unique shape permits the entire surface area of the sensor to make contact with the core sample, improving both the sensitivity and repeatability of the measurements. Use the IP/Resistivity Module to measure the sample's chargeability and resistivity.

- Prospecting – Use the KT-20 in the field for prospecting. Circular sensors are utilized for measuring large samples, like outcrop. The 10 kHz single-frequency circular sensor features a pin mode that aids in measuring samples with uneven, rough surfaces.

- Powders and Chips Samples – Use any circular or rectangular sensor to collect measurements on powders, rock chips and other loose samples. These types of samples should be formed into a bulk mass, with a surface area larger than the sensor, and at least 2-inches thick.

- Environmental Investigations – The 3F-32 large diameter sensor has a greater depth penetration than the single- and dual-frequency sensors. Use the 3F-32 to map soils, or in agricultural applications.

- Archaeology – The 3F-32 large diameter sensor is able to map the magnetic susceptibility and conductivity of soils, or detect shallow targets. Smaller sensors can be used to collect additional information on artifacts.

GeoView 2 Software

GeoView 2 is an easy-to-use data management and visualization software program that is compatible with all Windows operating systems.

It enables users to download, store and view a KT-20's data on a PC and export it to Excel. Data is organized by date, or by instrument serial number when there are data from multiple instruments. Additional information collected can be viewed in GeoView 2, including averaged readings, standard deviation, text and voice notes, pictures and GPS coordinates.

GeoView 2 is also a data visualization tool. Numerical values from discrete measurements are displayed in a table format; data from scanned and borehole mode measurements are displayed as a graph. Data from the borehole mode will show measurements from specific depths.

Curved Sensor Measuring Core Sample

IP/Resistivity Module with Small Sample Holder

Small and Large Sample Holders for IP/Resistivity Module

Borehole Mode Data in GeoView 2

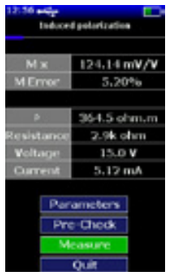
Magnetic Susceptibility & Conductivity

Measurement Modules

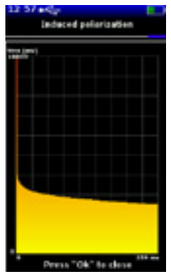
The KT-20 has four modules to measure magnetic susceptibility, conductivity, induced polarization (IP)/resistivity, and density. Magnetic susceptibility and conductivity can be measured simultaneously with circular or rectangular sensors, when both modules are activated. The KT-20 is available in any configuration, and all modules can be added to the console at a later date. Most upgrades can be completed through the internet, although a new sensor may be required. Sensitivities of the magnetic susceptibility and conductivity modules are dependent on sensor frequency and shape.

Discrete Magnetic Susceptibility Measurement

Discrete Conductivity Measurement



IP/Resistivity Measurement



IP Decay Curve

Density Measurement Result

Magnetic Susceptibility

- Measurement Range from 1 x 10-7 to 10 SI Units with Plus upgrade.
- Plus upgrade for iron ore applications (see options section for details).
- Applicable sensors include 1/10 kHz dual-frequency sensors, 10 kHz circular sensor, 10 kHz curved sensors, and 3F-32 large diameter sensor. Sensitivity is dependent on sensor frequency and shape (see sensor section for details).

Conductivity

- Measurement Range: Dependent on sensor frequency and shape (see sensor section for details)
- Absolute conductivity meter, sensors are calibrated using multi-point algorithm
- Cx upgrade to increase conductivity measuring range (see options section for details)
- Applicable sensors include 10/100 kHz dual-frequency sensors, 10 kHz circular sensor, 100 kHz curved sensors, and 3F-32 large diameter sensor. Sensitivity is dependent on sensor frequency and shape (see sensor section for details).

Induced Polarization / Resistivity

- Calculates chargeability using 20 standard windows, with arithmetic, logarithmic, semi-logarithmic and Cole-Cole plotting options.
- Mx Fit calculation: an algorithm that calculates chargeability over several thousand data points increasing accuracy.
- Resistivity and resistance measured.
- Automatic voltage and current calibration.
- Total Tau.
- Pro upgrade to record full waveform analysis, raw data and more (see options section for details).
- Operators can choose between two sample holder sizes, Small or Large, dependent on the length and width of the samples being measured.

Density

Enables the KT-20 to measure the density of a sample through water displacement. Includes a tensiometer, sample holder and water containment bag.

Magnetic Susceptibility & Conductivity

Sensors

The KT-20 has a range of interchangeable sensors with different shapes and frequencies. Each shape and frequency has its own benefit or application.
Users can swap sensors on the KT-20 to adapt the console to different sizes and types of samples, or for different applications.

Sensor Shapes

- Circular Sensors: Ideal for measuring large, flat samples. 10 kHz single-frequency sensor features a pin mode to measure samples with uneven surfaces. Dimensions: 66 mm diameter.
- Rectangular Sensors: Used for measuring small, flat samples or split core. Dimensions: 65 mm x 38 mm
- Curved Sensors: Designed to measure drill core samples. Their curved shape allows users to achieve a higher sensitivity for magnetic susceptibility or conductivity, while producing consistent, repeatable measurements. Dedicated curved sensors for BQ, HQ, NQ and PQ sizes.

Individual Frequencies

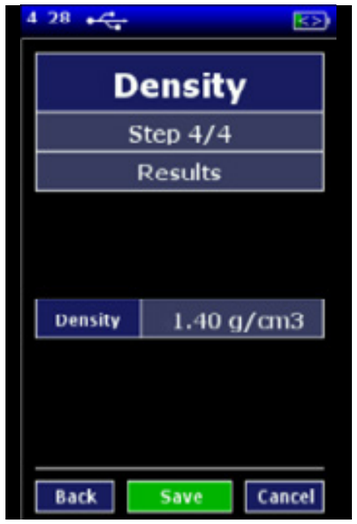
- 1 kHz: For measuring magnetic susceptibility on conductive samples. This frequency reduces the impact of conductivity on magnetic susceptibility measurements. This frequency is not suitable for measuring conductivity.
- 10 kHz: Ideal frequency for measuring both magnetic susceptibility and conductivity simultaneously. Single-frequency 10 kHz sensors offer highest sensitivity for measuring susceptibility.
- 100 kHz: Provides the highest sensitivity for conductivity measurements in low ranges. This frequency is not suitable for measuring magnetic susceptibility.

Rectangular, Curved and Circular Sensor Shapes

3F-32 Large Diameter Sensor

Sample in Air

Sample Submerged in Water



Density Measurement Result

Magnetic Susceptibility & Conductivity

Order Guide for KT-20 Consoles, Upgrades & Accessories

Dedicated Conductivity Meters

SKU	DESCRIPTION
1141-00522	KT-20 Console
	METHODS
1141-00522-S	S option - To enable the KT-20 console to measure magnetic susceptibility (Sensor required) [The KT-20 Console includes either the magnetic susceptibility (S option) OR conductivity (C option) firmware free of charge]
	SENSORS
1141-00536	10 kHz Single-Frequency Sensor (Available in Circular design only)
1141-00539-C	1/10 kHz Dual-Frequency Sensor (Available in Circular designs)
1141-00539-R	1/10 kHz Dual-Frequency Sensor (Available in Rectangular designs)
1141-00537-BQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated BQ,diameters)
1141-00537-HQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated NQ)
1141-00537-NQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated HQ)
1141-00537-PQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated PQ diameters)
	UPGRADES
1141-00541-A	PLUS OPTION - Increases magnetic susceptibility measurement range from 2 to 10 SI units.
1141-00541-C	S/C OPTION - To enable the KT-20 console to simultaneously measure magnetic susceptibility and conductivity.
1141-00541-E	DENSITY SCALE ASSEMBLY - To enable the KT-20 console to measure density. Includes scale with built-in USB Cable, wire to hold sample, hooks, and water containment bag with 3 leg stands.
1141-00541-F	BAR CODE READER OPTION - To enable the KT-20 camera to read bar codes (Must be selected at the time of purchase) Requires an example of the exact bar code to be used so that the KT-20 camera can be tuned specifically to that bar code.
1141-00541-G	Upgrade fee (Applicable for the following upgrades performed on a previously purchased unit: 11-13, A-E)
	ACCESSORIES
	Flat Magnetic Susceptibility Calibration Pads
1141-00514	Low Susceptibility Values (Typically 34 x 10-3 SI Units)
1141-00503	High Susceptibility Values (Typically 2,500 x 10-3 SI Units) (to be used with the Plus Option only)
	Curved Magnetic Susceptibility Calibration Pads
1141-00535-BQ	Dedicated BQ Diameter - Low Susceptibility Values (Typically 95 x 10-3 SI Units)
1141-00535-NQ	Dedicated NQ Diameter - Low Susceptibility Values (Typically 95 x 10-3 SI Units)
1141-00535-HQ	Dedicated HQ Diameter - Low Susceptibility Values (Typically 95 x 10-3 SI Units)
1141-00535-PQ	Dedicated PQ Diameter - Low Susceptibility Values (Typically 95 x 10-3 SI Units)

Magnetic Susceptibility & Conductivity

Order Guide for KT-20 Consoles, Upgrades & Accessories

Dedicated Conductivity Meters

SKU	DESCRIPTION
1141-00522	KT-20 Console
	METHODS
1141-00522-C	C option - To enable the KT-20 console to measure conductivity (Sensor required) [The KT-20 Console includes either the magnetic susceptibility (S option) OR conductivity (C option) firmware free of charge].
	SENSORS
1141-00536	10 kHz Single-Frequency Sensor (Available in Circular design only)
1141-00540-C	10/100 kHz Dual-Frequency Sensor (Available in Circular designs)
1141-00540-R	10/100 kHz Dual-Frequency Sensor (Available in Rectangular designs)
1141-00537-BQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated BQ,diameters)
1141-00537-HQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated NQ)
1141-00537-NQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated HQ)
1141-00537-PQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated PQ diameters)
	UPGRADES
1141-00541-B	Cx OPTION - Increases conductivity measurement range from 100,000 to 200,000 S/m
1141-00541-C	S/C OPTION - To enable the KT-20 console to simultaneously measure magnetic susceptibility and conductivity
1141-00541-E	DENSITY SCALE ASSEMBLY - To enable the KT-20 console to measure density. Includes scale with built-in USB Cable, wire to hold sample, hooks, and water containment bag with 3 leg stands.
1141-00541-F	BAR CODE READER OPTION - To enable the KT-20 camera to read bar codes (Must be selected at the time of purchase) Requires an example of the exact bar code to be used so that the KT-20 camera can be tuned specifically to that bar code
1141-00541-G	Upgrade fee (Applicable for the following upgrades performed on a previously purchased unit: 11-13, A-E)
	ACCESSORIES
	Flat Conductivity Reference Pads
1141-00532-A	Low Conductivity Value (Typically 9 S/m)
1141-00532-B	Medium Conductivity Value (Typically 700 S/m)
1141-00532-C	High Conductivity Value (Typically 85,000 S/m)
	Curved Conductivity Reference Pads
1141-00533-BQ	Dedicated BQ Diameter - Low Conductivity Values (Typically 18 S/m)
1141-00533-NQ	Dedicated NQ Diameter - Low Conductivity Values (Typically 18 S/m)
1141-00533-HQ	Dedicated HQ Diameter - Low Conductivity Values (Typically 18 S/m)
1141-00533-PQ	Dedicated PQ Diameter - Low Conductivity Values (Typically 18 S/m)
	OTHER ACCESSORIES
1141-00529	KT-20 Carrying Pouch

Magnetic Susceptibility & Conductivity

Order Guide for KT-20 Consoles, Upgrades & Accessories

Combined Magnetic Susceptibility/Conductivity Meters

SKU	DESCRIPTION
1141-00522	KT-20 Console
	METHODS
1141-00522-SC	S/C option - To enable the KT-20 console to simultaneously measure magnetic susceptibility and conductivity (Sensor required)
	SENSORS
1141-00536	10 kHz Single-Frequency Sensor (Available in Circular design only)
1141-00539-C	1/10 kHz Dual-Frequency Sensor (Available in Circular designs)
1141-00539-R	1/10 kHz Dual-Frequency Sensor (Available in Rectangular designs)
1141-00540-C	10/100 kHz Dual-Frequency Sensor (Available in Circular designs)
1141-00540-R	10/100 kHz Dual-Frequency Sensor (Available in Rectangular designs)
1141-00537-BQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated BQ,diameters)
1141-00537-HQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated NQ)
1141-00537-NQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated HQ)
1141-00537-PQ	10 kHz Single-Frequency Curved Sensor for Magnetic Susceptibility Measurements ONLY (Available only in dedicated PQ diameters)
1141-00538-BQ	100 kHz Single-Frequency Curved Sensor for Conductivity Measurements ONLY (Available only in dedicated BQ, diameters)
1141-00538-HQ	100 kHz Single-Frequency Curved Sensor for Conductivity Measurements ONLY (Available only in dedicated NQ)
1141-00538-NQ	100 kHz Single-Frequency Curved Sensor for Conductivity Measurements ONLY (Available only in dedicated, HQ)
1141-00538-PQ	100 kHz Single-Frequency Curved Sensor for Conductivity Measurements ONLY (Available only in dedicated PQ diameters)
	UPGRADES
1141-00541-A	PLUS OPTION - Increases magnetic susceptibility measurement range from 2 to 10 SI units
1141-00541-B	Cx OPTION - Increases conductivity measurement range from 100,000 to 200,000 S/m
1141-00541-E	DENSITY SCALE ASSEMBLY - To enable the KT-20 console to measure density. Includes scale with built-in USB Cable, wire to hold sample, hooks, and water containment bag with 3 leg stands
1141-00541-F	BAR CODE READER OPTION - To enable the KT-20 camera to read bar codes (Must be selected at the time of purchase) Requires an example of the exact bar code to be used so that the KT-20 camera can be tuned specifically to that bar code
1141-00541-G	Upgrade fee (Applicable for the following upgrades performed on a previously purchased unit: 11-13, A-E)
	ACCESSORIES
	Flat Magnetic Susceptibility Calibration Pads
1141-00514	Low Susceptibility Values (Typically 34 x 10-3 SI Units)
1141-00503	High Susceptibility Values (Typically 2,500 x 10-3 SI Units) (to be used with the Plus Option only)
	Curved Magnetic Susceptibility Calibration Pads
1141-00535-BQ	Dedicated BQ Diameter - Low Susceptibility Values (Typically 95 x 10-3 SI Units)
1141-00535-NQ	Dedicated NQ Diameter - Low Susceptibility Values (Typically 95 x 10-3 SI Units)
1141-00535-HQ	Dedicated HQ Diameter - Low Susceptibility Values (Typically 95 x 10-3 SI Units)
1141-00535-PQ	Dedicated PQ Diameter - Low Susceptibility Values (Typically 95 x 10-3 SI Units)
	Flat Conductivity Reference Pads
1141-00532-A	Low Conductivity Value (Typically 9 S/m)
1141-00532-B	Medium Conductivity Value (Typically 700 S/m)
1141-00532-C	High Conductivity Value (Typically 85,000 S/m)
	Curved Conductivity Reference Pads
1141-00533-BQ	Dedicated BQ Diameter - Low Conductivity Values (Typically 18 S/m)
1141-00533-NQ	Dedicated NQ Diameter - Low Conductivity Values (Typically 18 S/m)
1141-00533-HQ	Dedicated HQ Diameter - Low Conductivity Values (Typically 18 S/m)
1141-00533-PQ	Dedicated PQ Diameter - Low Conductivity Values (Typically 18 S/m)
	OTHER ACCESSORIES
1141-00529	KT-20 Carrying Pouch

Magnetic Susceptibility & Conductivity - Additional Modules

KT-20 IP Module

SKU	DESCRIPTION
1141-00522	KT-20 Console
METHODS	
The KT-20 Console includes either the magnetic susceptibility (S option) OR conductivity (C option) firmware free of charge	
SENSORS	
1141-00522-IRS	IP Induced Polarization/Resistivity Sensor with IP/Resistivity Electronics, Cables, and Small Sample Holder
1141-00522-IRL	IP Induced Polarization/Resistivity Sensor with IP/Resistivity Electronics, Cables, and Large Sample Holder
UPGRADES	
1141-00541-D	PRO OPTION - To increase the capabilities of the IP sensor (with Small or Large Sample Holder). The Pro Option includes: Full waveform analysis up to 16,000 windows; initial chargeability (M_ip) calculated; decay analysis starting 2ms after switch off; chargeability calculations from user defined time intervals; 3 time constants (Tau) calculated; 3 exponential decay models; and Raw data recording.
1141-00541-E	DENSITY SCALE ASSEMBLY - To enable the KT-20 console to measure density. Includes scale with built-in USB Cable, wire to hold sample, hooks, and water containment bag with 3 leg stands.
1141-00541-F	BAR CODE READER OPTION - To enable the KT-20 camera to read bar codes (Must be selected at the time of purchase) Requires an example of the exact bar code to be used so that the KT-20 camera can be tuned specifically to that bar code.
1141-00541-G	Upgrade fee (Applicable for the following upgrades performed on a previously purchased unit: 11-13, A-E)
OTHER ACCESSORIES	
1141-00529	KT-20 Carrying Pouch
KT-20 IP ACCESSORIES	
1141-00534-A	IP-T10 IP Reference Pad (to be used with either the Small or Large Sample Holder)
1141-00534-B	Stand-alone IP/Resistivity Sensor with IP/Resistivity Electronics and Cables (to be used with either the Small or Large Sample Holder)
1141-00534-C	Stand-alone Small Sample Holder (to be used with the IP/Resistivity Sensor, Electronics, and Cables)
1141-00534-D	Stand-alone Large Sample Holder (to be used with the IP/Resistivity Sensor, Electronics, and Cables)

KT-20 3F-32 Module

SKU	DESCRIPTION
1141-00522	KT-20 Console
METHODS	
The KT-20 Console includes either the magnetic susceptibility (S option) OR conductivity (C option) firmware free of charge	
SENSORS	
1141-00523	3-Frequency (1/10/100 kHz), 32cm Diameter (3F-32) Sensor with Pole, Arm Support, Cable, and Rugged Transportation Case
UPGRADES	
1141-00541-A	PLUS OPTION - Increases magnetic susceptibility measurement range from 2 to 10 SI units
1141-00541-B	Cx OPTION - Increases conductivity measurement range from 100,000 to 200,000 S/m
1141-00541-C	S/C OPTION - To enable the KT-20 console to simultaneously measure magnetic susceptibility and conductivity
1141-00541-E	DENSITY SCALE ASSEMBLY - To enable the KT-20 console to measure density. Includes scale with built-in USB Cable, wire to hold sample, hooks, and water containment bag with 3 leg stands.
1141-00541-F	BAR CODE READER OPTION - To enable the KT-20 camera to read bar codes (Must be selected at the time of purchase) Requires an example of the exact bar code to be used so that the KT-20 camera can be tuned specifically to that bar code
1141-00541-G	Upgrade fee (Applicable for the following upgrades performed on a previously purchased unit: 11-13, A-E)

Magnetic Susceptibility & Conductivity Technical Specifications for KT-20 Sensors

10 kHz Single-Frequency Curved Sensors for Magnetic Susceptibility

Sensor Sizes	BQ, NQ, HQ & PQ
Operating Frequency	10 kHz
Magnetic Susceptibility Sensitivity	6 x 10-7 SI
Magnetic Susceptibility Measurement Range	0.0006 x 10-3 to 1999.99 x 10-3 SI
Extended Range (Plus Option)	0.0006 x 10-3 to 9999.99 x 10-3 SI

100 kHz Single-Frequency Curved Sensors for Conductivity

Sensor Sizes	BQ	NQ & HQ	PQ
Operating Frequencies	100 kHz	100 kHz	100 kHz
Conductivity Sensitivity	0.07 S/m	0.05 S/m	0.04 S/m
Conductivity Measurement Range	0.07 to 100 S/m	0.05 to 100 S/m	0.04 to 100 S/m

10 kHz Single-Frequency Circular Sensor

	Without Pin	With Pin
Operating Frequency	10 kHz	10 kHz
Magnetic Susceptibility Sensitivity	1 x 10-7 SI	1 x 10-6 SI
Conductivity Sensitivity	1 S/m	10 S/m
Magnetic Susceptibility Measurement Range	0.0001 x 10-3 to 1999.99 x 10-3 SI	0.001 x 10-3 to 1999.99 x 10-3 SI
Extended Range (Plus Option)	0.0001 x 10-3 to 9999.99 x 10-3 SI	0.001 x 10-3 to 9999.99 x 10-3 SI
Conductivity Measurement Range	1 to 100,000 S/m	10 to 100,000 S/m

1 / 10 kHz Dual-Frequency Sensors

	Circular/Regular	
Operating Frequencies	1 kHz	10 kHz
Magnetic Susceptibility Sensitivity	1 x 10-5 SI	1 x 10-6 SI
Conductivity Sensitivity	21.3 S/m	1 S/m
Magnetic Susceptibility Measurement Range	0.01 x 10-3 to 1999.99 x 10-3 SI	0.001 x 10-3 to 1999.99 x 10-3 SI
Extended Range (Plus Upgrade)	0.01 x 10-3 to 9999.99 x 10-3 SI	0.001 x 10-3 to 9999.99 x 10-3 SI
Conductivity Measurement Range	21.3 to 100,000 S/m	1 to 100,000 S/m
Extended Range (Cx Upgrade)	21.3 to 200,000 S/m	1 to 200,000 S/m

Magnetic Susceptibility & Conductivity

10 / 100 kHz Dual-Frequency Sensors

Circular/Regular		
Operating Frequencies	10 kHz	100 kHz
Magnetic Susceptibility Sensitivity	1 x 10-6 SI	-
Conductivity Sensitivity	1 S/m	0.1 S/m
Magnetic Susceptibility Measurement Range	0.001 x 10-3 to 1999.99 x 10-3 SI	-
Extended Range (Plus Option)	0.001 x 10-3 to 9999.99 x 10-3 SI	-
Conductivity Measurement Range	1 to 100,000 S/m	0.1 to 15,000 S/m
Extended Range (Cx Option)	1 to 200,000 S/m	-

3F-32 Large Diameter Sensor

	1 kHz	10 kHz	100 kHz
Magnetic Susceptibility Sensitivity	1 x 10-5 SI	1 x 10-6 SI	1 x 10-5 SI
Conductivity Sensitivity	1 S/m	0.1 S/m	0.05 S/m
Magnetic Susceptibility Measurement Range	0.01 x 10-3 to 1999.99 x 10-3 SI	0.001 x 10-3 to 1999.99 x 10-33223333333 SI	0.01 x 10-3 to 1999.99 x 10-3 SI
Conductivity Measurement Range	1 to 10,000 S/m	0.1 to 10,000 S/m	0.05 to 10,000 S/m
Measurement Frequency	▪ 4 readings per second, in stationary mode ▪ 10 readings per second, in scan mode		

Induced Polarization (IP) / Resistivity Sensor

Parameters Calculated and Displayed	Chargeability, Error, Apparent Resistivity, Current, Voltage, Resistance	
Chargeability Resolution	10 µV/V	
Chargeability Precision	0.2%	
Voltage Resolution	10 µV	
Current Sensitivity	10 µA	
TRANSMITTER		
Signal Waveform	Time Doman (ON+, OFF, ON-, OFF)	
Pulse Duration	0.5, 1, 2, 4 and 8 seconds	
Current	Maximum 150 mA (electronically fused)	
Voltage	6V and 15V DC	
Contact Resistance	50Ω to 5MΩ 50Ω to 2MΩ @ 6V DC 100Ω to 5MΩ @ 15V DC	
Voltage and Current Calibration	Automatic	
RECEIVER		
Voltage Resolution	10 µA	
Current Resolution	10 mA	
Early Delay Time	2 ms (Pro upgrade only)	
SAMPLE HOLDERS		
Size	Small	Large
Length of Core/Sample	40 - 140 mm	50 - 350 mm
Diameter of Electrodes	70 mm	90 mm

Magnetic Susceptibility & Conductivity

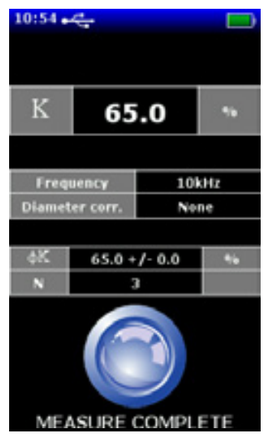
Instrument Upgrades

Plus Upgrade (KT10 & KT 20) for magnetic susceptibility module
- Increase measurement range to 10 SI units
- Iron ore concentration estimates (%) directly from the display for magnetite ore.

Cx Upgrade (KT10 & KT 20) for conductivity module
(only available with 1 kHz and 10 KHz frequencies)
- Increase measurement range to 200,000 S/m

Pro Upgrade (KT20) for IP/resistivity module
- Full waveform decay curve analysis using 16,000 data points
- Initial chargeability (M ip) calculated
- Decay analysis starting 2ms after switch off
- Chargeability calculations from user defined time intervals (M User)
- 3 time constants (Tau) calculated and 3 exponential decay models
- Raw data recording

Bar code option (KT20)
Camera can be specifically tuned to read a variety of bar codes to facilitate archiving.



Plus Option

Magnetic Susceptibility Calibration Pads

Three calibration pads are available to recalibrate magnetic susceptibility measurements, or as a check source to confirm the readings - two for flat sensors and one for curved sensors. The curved calibration pad is available in BQ, NQ, HQ, or PQ diameters. The flat calibration pad with high values is only suitable for consoles with the Plus upgrade.

	Flat (KT-10 & KT-20)		Curved (KT-20)
Approx. Nominal Susceptibility Values: (values will vary between pads)	Low Range	High Range	Low Range
	34 x 10-3 SI	2500 x 10-3 SI	95 x 10-3 SI

Conductivity Reference Pads

Four reference pads are available to verify the console's conductivity measurements - three for flat sensors and one for curved sensors. The curved reference pad is available in BQ, NQ, HQ, or PQ diameters. Each pad is independently tested using different methods for measuring conductivity (AC, DC and impedance bridges).

	Flat (KT-10 & KT-20)			Curved (KT-20)
Approx. Nominal Susceptibility Values: (values will vary between pads)	Low Range	Medium Range	High Range	Low Range
	9 S/m	700 S/m	85,000 S/m	18 S/m

Magnetic Susceptibility & Conductivity

IP-T10 Reference Pad (KT20)

The IP-T10 is a dedicated reference pad to verify the IP/ Resistivity Module's various measurement parameters and can be used with either the Small or Large Sample Holder. Shaped like a core sample, its housing is made from polished granite to minimize the influence of any surface contamination.

SM30 Magnetic Susceptibility Meter

The SM30 is a small magnetic susceptibility meter. Thanks to the high sensitivity we can measure sediments and rocks with extremely low level of magnetic susceptibility.
In addition, we can distinctly measure diamagnetic materials such as limestone, quartz and also water.

- High sensitivity 1×10-7 SI units - the sensitivity is 10 times better than that of the competitive instruments
- Small size and low weight.
- Thanks to sophisticated signal processing the noise induced in pick - up coil is suppressed well under the resolution 1×10-7 SI units.
- The sensor design enables to get 90% of its signal from the first 20 mm of the rock. This feature allows more accurate readings on uneven surfaces of all rock types.
- Auto-ranging and three-button control makes the meter the easiest to operate by one hand only.
- Internal memory can store 250 readings.
- 6 measuring modes - four from six measuring modes suppress linear part of the thermal drift.
- Sensitivity: 1×10-7 SI Units
- Operating frequency: 8kHz
- Measurement time: Less than 5s
- Digital display: 4 digits LCD
- Controls: 3 push buttons
- Pick-up coil: 56 mm in diameter
- Operating temperature: -20 °C to 50 °C
- Battery: 2 lithium CR2430
- Battery life: Approx 80 hrs
- PC interface: RS232C
- Standard accessories: Operating manual, RS232 cable, PC software for data transmission and external control.

SKU	SIZE	WEIGHT
1141-00550	100 × 65 × 25mm	0.18kg

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