V1.0 Oct 2014

SENSOR READOUT

MP12

INSTRUCTION MANUAL

CE

GEOSENSE

CONTENTS

1.0 INTRODUCTION

This manual is intended for all users of the **Geosense® MP12** and provides a guide for its installation, operation and maintenance.

It is VITAL that personnel responsible for the installation and use of the MP12 READ and UNDERSTAND the manual, prior to working with the equipment.

1.1 General Description

The **Geosense® MP12** is a multi-purpose manual readout unit which can be used with all types of electrical outputs including vibrating wire.

Colour coded connections for the different sensor types makes the MP12 easy to use with any type of sensor cable.

The simple display means that you do not have complicated multiple screen menus and can be operated with just six simple buttons.

The **Geosense® MP12** is capable of measuring the following:-

- **Hertz/Digit** (vibrating wire instrumentation such as piezometers, strain gauges, etc.)
- **4-20mA** (strain gauge piezometers, tilt meters)
- **Volt** (tilt meters, strain gauges, crack meters)
- **mV/V** (load cells, Wheatstone bridge instruments)
- **Ohm** (temperature sensors Pt100, Pt1000, NTC)

1.2 Theory of Operation

Instruments are connected to the **Geosense® MP12** multi purpose readout with a connecting cable and the output from the sensor is displayed.

2.0 CONFORMITY

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Suffolk , IP30 9ND
United Kingdom

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www.geosense.co.uk

EC Declaration of Conformity

We Geosense Ltd at above address declare that the equipment detailed below, complies with the requirements of the following EU Directives:-

- Low Voltage Directive 2006/95/EC
- Electromagnetic Compatibility Directive 2004/108/EC
- Waste electrical and electronic equipment (WEEE) 2012/19/EU
- Restriction on the use of certain Hazardous Substances (RoHS2) 2011/65/EU

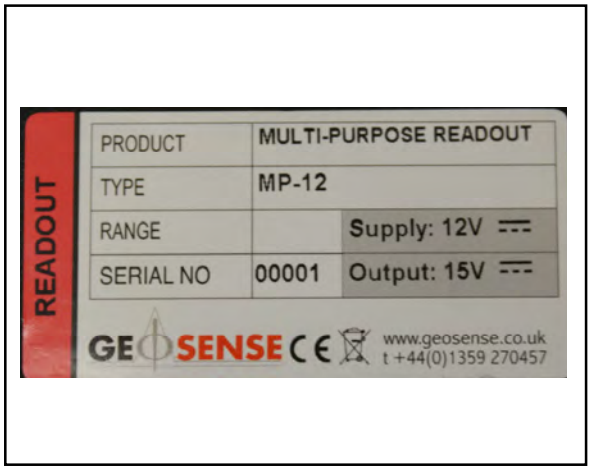
Equipment description:	**Multipurpose Readout**
Make/Brand:	**Geosense**
Model Numbers:	**MP12**

Compliance has been assessed with reference to the following harmonised standard:
EN 61326-1:2006 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements.

A technical file for this equipment is retained at the above address.

Marı n Clegg
Director
Rougham, July 2014

3.0 MARKINGS



A **Geosense® MP12 Multipurpose Readout** is labelled with the following information:-

Manufacturers telephone number & website address

Product group: Readout

Product type: Multipurpose

Model: MP12

Input supply: 12 Volts DC (re-chargeable NiCAD battery)

Serial number: 123456

CE mark

WEEE mark

4.0 STORAGE/HANDLING

Geosense® MP12 Multipurpose Readout are precision instruments containing sensitive electronics and whilst they are mounted within a water resistant (IP65) enclosure, the internal circuit board can be affected by excessive moisture.

It is also recommended that the unit is kept within the carry case and stored in a dry environment and out of direct sunlight.

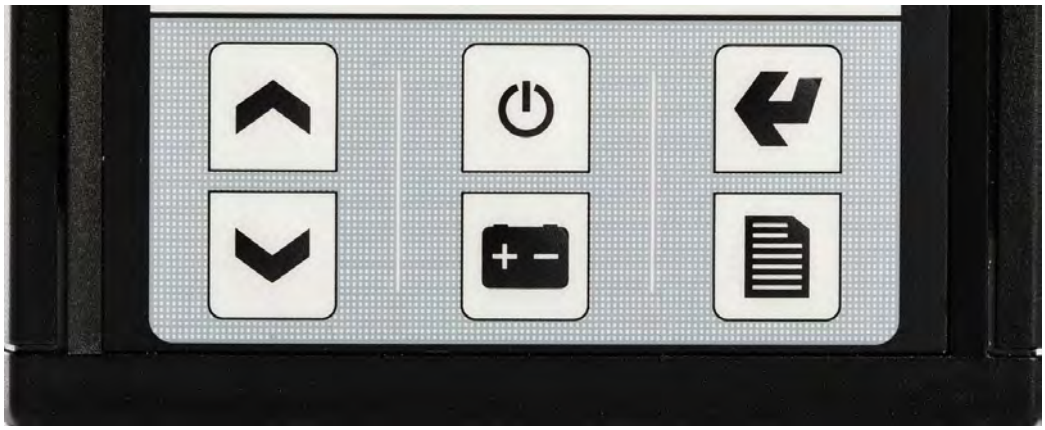
Avoid placing heavy weights on top of the carry case as this could damage the unit.

Sensor connection cables should also be kept from being tangled and also any abrasions.

The **Geosense® MP12 Multipurpose Readout** is not shockproof, therefore any sharp impacts may damage the unit, and thus should be avoided.

5.0 OPERATION

5.1 KEYBOARD FUNCTIONS



1. Switching on and off. Backlight.

2. Battery Test

3. Enter - Reading

4. Menu

5. UP Arrow

6. DOWN Arrow

5.2 SETTING READOUT MODE

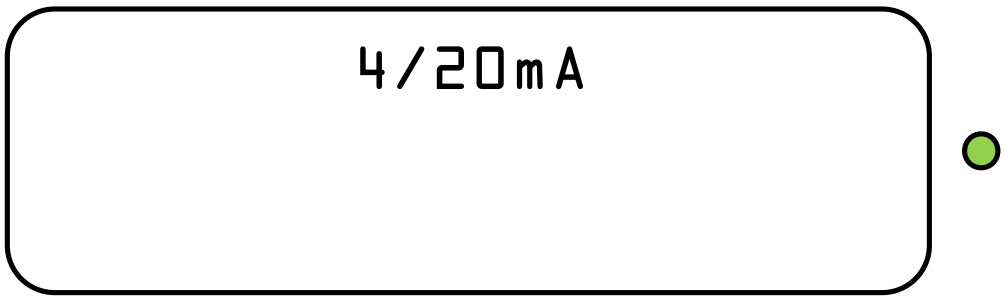
Press the ON/OFF Key  to switch on the device.

Press and hold the key for several seconds to switch it off.

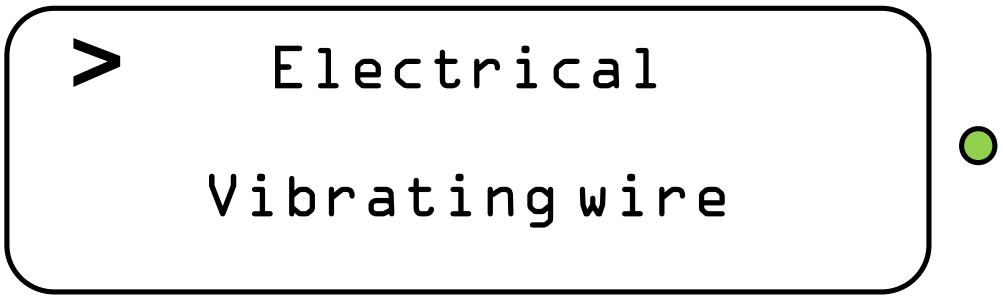
The readout unit turns off automatically if the button is not pressed for about 5 minutes.

On the top line of the display you will see the last type of reading, used by the operator.

**** please note that a lit green light indicates that the readout is on ****

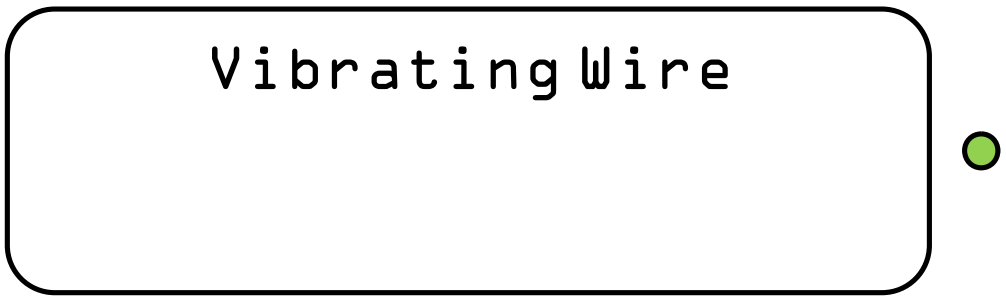


If another readout mode is required, press the menu key  to go to the main menu.

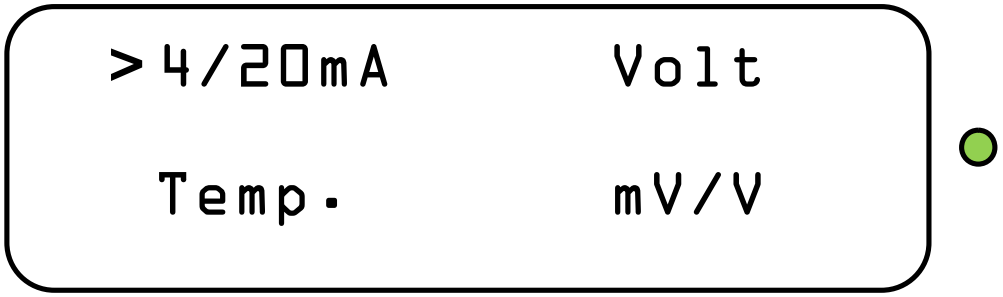


Using the arrow keys  &  select either **Electrical** (4/20mA, Voltage, Temperature & mV/V) or **Vibrating wire.**

Once the desired menu is selected (indicated by the arrow) press the enter button 



There is only one choice within the **vibrating wire** menu, so selecting the vibrating wire top menu will take you straight into the take readings screen.



There are 4 choices within the **electrical** menu:

1. 4/20 mA
2. Voltage
3. Temperature
4. Strain Gauge (mV/V)

Using the arrow keys, ^ & v select the required readout mode.

Once the desired menu is selected (indicated by the arrow) press the enter button ↵

5.3 WIRING DETAILS

Once the correct readout mode is set attach your sensor using the clamp grips. Make sure that the wire are held firmly in the connection grips.

Please see the next page (5.3.1) for sensor wiring details.

5.3.1 WIRING DETAILS

4/20mA 2 wire

V, mV, mV/V/PT100/NTC - 4 wire/diff.

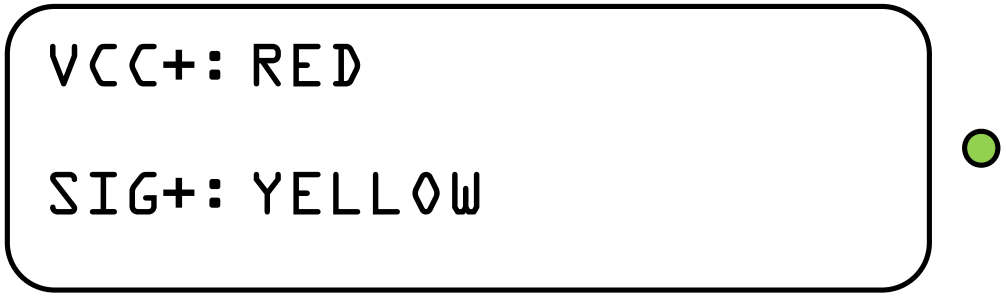
VW (Hz)

V ±12V Dual Ended

4/20mA 3 wire

V, mV, mV/V/PT100/NTC - 3 wire/s.ended

PT100/NTC - 2 wire

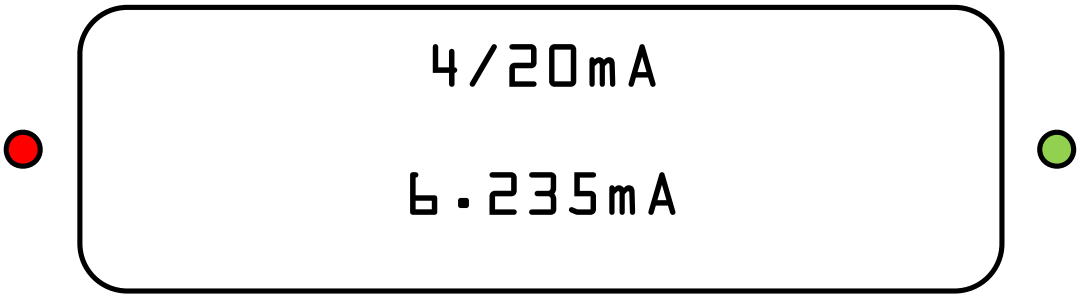


To access the wiring details for any readout mode, simply hold down the menu key for 3 Seconds, while in the desired readout mode.

This will access the wiring menu, use the arrow keys & to cycle through the wiring instructions.

To return to the acquisition screen simply press the enter key

5.4.1 TAKING READINGS - SINGLE READINGS



Once the correct readout mode is selected and the sensor is wired.

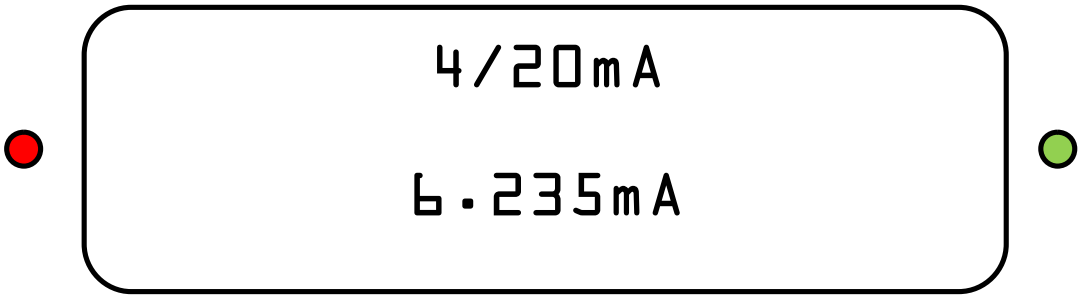
Press the Enter Key to take a reading, of the indicated sensor type.

While keeping the key pressed, the device displays the values continuously acquired in real time. The readout indicates a readings are being taken by a solid red light

After releasing the key, the last reading, which was done, remains on the display. The readout will stop taking readings once the enter key is released.

** Please note that pressing the enter key once will only take 1 reading **

5.4.2 TAKING READINGS - CONTINOUS READINGS

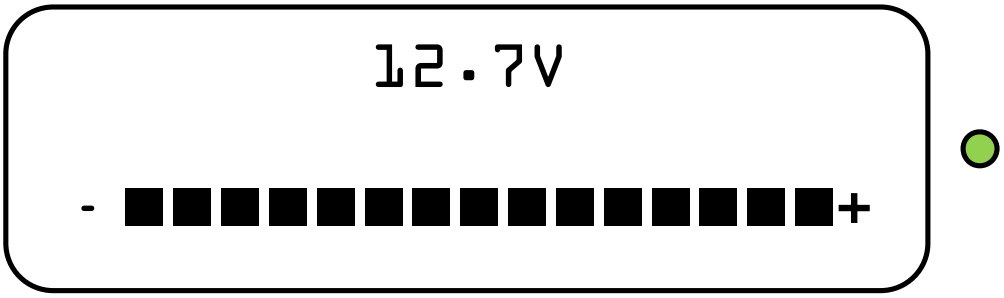


To set the readout to continuous readings press the enter key and the up arrow at the same time.

The mode is indicated to be on my a solid red light to the left of the display.

To exit this mode press the enter key again and the red light should turn off.

5.5 CHECKING BATTERY VOLTAGE



While in the readout mode for any sensor type hold down the battery test button

While pressed the charge of the battery will be indicated as shown above.

If voltage is reading less than 10V, then the readout should be charged to ensure correct readings.

To charge, simply plug the charger plug into the side charging port of the readout, and plug the charger into the mains.

6.0 MAINTENANCE

Geosense® MP12 Multipurpose Readout are maintenance free devices, for most applications. However users should be aware that the unit contains a rechargeable NiCad battery. Therefore, if not used for long periods of time, the batteries may discharge.

7.0 TROUBLESHOOTING

PROBLEM	REMEDY
Readout does not turn on (no green light)	Plug into charge, if the readout still does not turn on pelase return to **Geosense®** for inspection.
No screen display (but green light lit)	Send to **Geosense®** for inspection
Reading not as expected	Check wiring/connections then check battery level
Buttons not functioning	Send to **Geosense®** for inspection

If after all of the above checks have been carried out and the Readout still does not operate correctly, please contact **Geosense®** for advice, or return unit for inspection.

8.0 SPECIFICATION

ITEM	MP12 Readout
Types of inputs	4-20 mA, V, mV/V, Ohm, Hz/Digit
Supply	12Vdc Bai ery
Measurement Resolui on	16 bit
Operai ng Temperature	-20 to +70 °C
Sensor supply voltage	+15V, ±12V, +5V (mV/V)
Display	LCD 16 x 2, Backlight characters
Protecı on	IP65
Power management	Bai ery voltage tester
Dimensions	130 x 100 x 34 mm
Weight	600g

9.0 SPARE PARTS

The following spares are available for the **Geosense® MP12 Multipurpose Readout:**

5 colour sensor connection leads (only available as a set of 5)
Charger

For spares please contact **Geosense® Ltd.**

10.0 RETURN OF GOODS

10.1 Returns procedure

If goods are to be returned for either service/repair or warranty, the customer should contact **Geosense®** for a **Returns Authorisation Number,** request a **Returned Equipment Report Form QF034** and, prior to shipment. Numbers must be clearly marked on the outside of the shipment.

Complete the **Returned Equipment Report Form QF034**, including as much detail as possible, and enclose it with the returned goods and a copy of the form should be faxed or emailed in advance to the factory.

10.2 Chargeable Service or Repairs (Inspection & Estimate)

It is the policy of **Geosense®** that an estimate is provided to the customer prior to any repair being carried out. A set charge for inspecting the equipment and providing an estimate is also chargeable.

10.3 Warranty Claim (See Limited Warranty Conditions)

This covers defects which arise as a result of a failure in design or manufacturing. It is a condition of the warranty that the **Geosense® MP12 Multipurpose Readout** must be installed and used in accordance with the manufacturer's instructions and has not been subject to misuse.

In order to make a warranty claim, contact **Geosense®** and request a **Returned Equipment Report Form QF034.** Tick the warranty claim box and return the form with the goods as above. You will then be contacted and informed whether your warranty claim is valid.

10.4 Packaging and Carriage

All used goods shipped to the factory **must** be sealed inside a clean plastic bag and packed in a suitable carton. If the original packaging is not available, **Geosense®** should be contacted for advice. **Geosense®** will not be responsible for damage resulting from inadequate returns packaging or contamination under any circumstances.

10.5 Transport & Storage

All goods should be adequately packaged to prevent damage in transit or intermediate storage.

11.0 LIMITED WARRANTY

The manufacturer, Geosense Ltd, warrants the **Geosense® MP12 Multipurpose Readout** manufactured by it, under normal use and service, to be free from defects in material and workmanship under the following terms and conditions:-

Sufficient site data has been provided to **Geosense** by the purchaser as regards the nature of the installation to allow **Geosense** to confirm the applicability of the **MP12 Multipurpose Readout** and other component parts.

The **Geosense® MP12 Multipurpose Readout** shall be used in accordance with the manufacturer's recommendations.

The equipment is warranted for 1 year from the date of shipment from the manufacturer to the purchaser.

The warranty is limited to replacement of part or parts which, are determined to be defective upon inspection at the factory. Shipment of defective part or parts to the factory shall be at the expense of the Purchaser. Return shipment of repaired/ replaced part or parts covered by this warranty shall be at the expense of the Manufacturer.

Unauthorised alteration and/or repair by anyone which, causes failure of the unit or associated components will void this **LIMITED WARRANTY** in its entirety.

The Purchaser warrants through the purchase of the Geosense® MP12 Multipurpose Readout equipment that he is familiar with the equipment and its proper use. In no event shall the manufacturer be liable for any injury, loss or damage, direct or consequential, special, incidental, indirect or punitive, arising out of the use of or inability to use the equipment sold to the Purchaser by the Manufacturer.

The Purchaser assumes all risks and liability whatsoever in connection with the **Geosense® MP12 Multipurpose Readout** equipment from the time of delivery to Purchaser.

Geosense Ltd

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