

When discussing polarity, it is important to differentiate between Geographic Poles (North and South Poles) and Magnetic Polarity. There is a difference, though they are often mistakenly thought to be one and the same. As a result, there is great confusion when it comes to naming the poles and correctly identifying the Negative (-) and the Positive (+) pole.

Geographic Poles

The Earth has two Poles – the North Pole and the South Pole. These poles are geographic markers only and are not a reference to the actual magnetic polarity of the region. The Geographic Poles can also be referred to as Bio North and Bio South.

Geographic or Bio North Pole
(Arctic)



Geographic or Bio South Pole
(Antarctica)

Magnetic Polarity

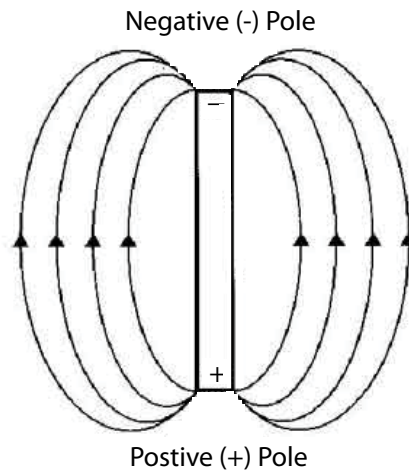
When discussing Magnetic Polarity, it is important to first know what flux is.

“Magnetic fields surrounding permanent magnets or electrical conductors can be visualized as a collection of magnetic flux lines; lines of force existing in the material that is being subjected to a magnetizing influence. Unlike light, which travels away from its source indefinitely, magnetic flux lines must eventually return to the source. Thus all magnetic sources are said to have two poles.”

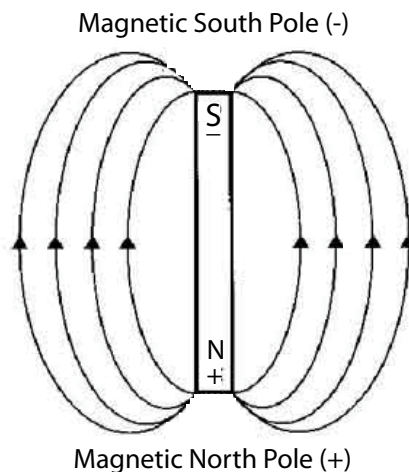
Instruction Manual Model 5080 Gauss/Tesla Meter, F.W. Bell

Secondly, when discussing Magnetic Polarity, keep in mind the following three widely accepted scientific theories:

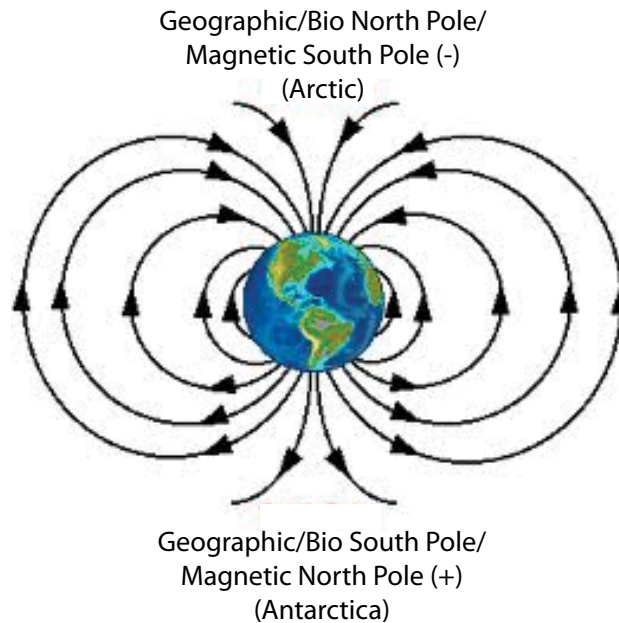
1. With a magnet, the magnetic lines of force (flux) originate at the Positive (+) pole and return to the Negative (-) pole. If you could see the flux lines, they would look like this:



2. The second is that with a magnet, the magnetic lines of force (flux) originate from the Magnetic North and return to Magnetic South. If you could see the flux lines, they would look like this:



3. The third is that the Earth's own magnetic field moves from the Antarctica (below South America) to the Arctic (above Canada). If you could see the lines of flux, they would look like this:



Based on the above, the following conclusion can be made:

Geographic North = Arctic = Bio North = Magnetic South = Negative (-)

Geographic South = Antarctic = Bio South = Magnetic North = Positive (+)

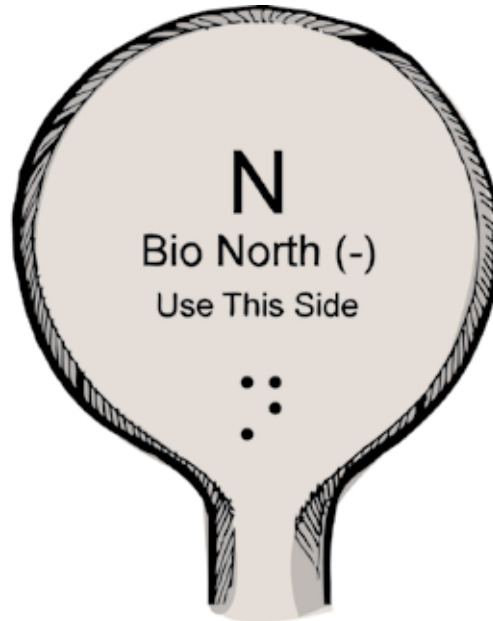
Since the lines of flux originate from a Positive (+) pole and return to a Negative (-) pole AND originate from Magnetic North and return to Magnetic South AND originate from Geographic South (Antarctica) and return to Geographic North (Arctic), that must mean that Geographic South is Magnetic North which is magnetically Positive (+) and Geographic North is Magnetic South which is magnetically Negative (-).

As a result of the misunderstanding surrounding polarity, many are now choosing to label magnets simply as Positive (+) and Negative (-), leaving the words North and South out of it all together.

Polarity and the SOTA Magnetic Pulser

So, how does all of this relate to the SOTA Magnetic Pulser? Unlike bar magnets, the hand paddle of the Magnetic Pulser does not always have a magnetic field. The magnetic field is generated when the unit charges and the pulse is released through the coil in the hand paddle. This pulse creates a temporary magnetic field, which creates both a Positive (+) pole and a Negative (-) pole.

The hand paddle of the Magnetic Pulser is labelled as illustrated below:



Here, SOTA has chosen to use N to indicate the Bio North or Geographic North side of the paddle. The (-) lets the user know that they are using the Negative (-) side of the paddle.

This polarity can be confirmed with the use of a compass. With the Magnetic Pulser on and charging, bring a compass near the paddle head (do not bring too close or you may ruin your compass). When the charge is released through the paddle head, the needle of the compass will be drawn towards the Bio North side of the paddle and repelled by the Bio South side (the side with the SOTA logo).

To Check the Polarity of Any Magnetic Pulse Generator

This same compass test can be used to check the polarity of any pulsed magnetic field unit. If the compass needle is drawn towards the coil face, then that side will be the Negative (-) side - regardless of how the coil may actually be labelled. If the compass needle is pushed away from the coil face, then that side will be the Positive (+).

Independent Confirmation

Given all of the confusion regarding polarity, SOTA wanted to ensure that the Magnetic Pulser had been correctly labelled and that our understanding of polarity was correct. In order to do this, we had the Magnetic Pulser independently tested by Dr. Ron M. Lawrence, MD, Ph.D., an author and former President of the North American Academy of Magnetic Therapy. Using a Magnetometer, an instrument used for measuring magnetic forces, Dr. Lawrence was able to confirm that the Bio North side of the Magnetic Pulser hand paddle did, in fact have a Negative (-) charge.

Does Polarity Matter with Pulsed Magnetic Fields

There is some question as to whether or not polarity is even a factor when discussing Pulsed Magnetic Fields. With static or conventional magnets, it has long been stated that the Negative (-) side is more calming and relaxing, while the Positive (+) side is more stimulating. As a result, for nearly all applications, users are cautioned against using the Positive (+) side of any magnet.

However, with Pulsed Magnetic Fields, the Magnetic Field is being used to induce microcurrents - the polarity is not the driving force behind the unit. Much of the research with Pulsed Magnetic Fields does not differentiate with regards to polarity. In an effort to get clarity on the importance of polarity and Pulsed Magnetic Fields, we spoke with several people considered experts in the field and all of them told us that the Polarity does not matter when it comes to Pulsed Magnetic Fields. However, as a precaution, SOTA has chosen to label the hand paddle to identify polarity and to include the same cautions as those for static magnets, with the Negative (-) side to be used, rather than the Positive (+) side in nearly all instances.

Conclusion

In conclusion, when discussing polarity, it is important to remember that there is a difference between the Geographic or Bio Poles and Magnetic Polarity. Geographic or Bio Poles are directional references, while Magnetic Poles have either a Positive (+) or Negative (-) charge, depending on the pole itself. Perhaps the easiest summary is as follows:

Geographic North = Arctic = Bio North = Magnetic South = Negative (-)

Geographic South = Antarctic = Bio South = Magnetic North = Positive (+)