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## Gen-R-Mind-R

### Digital Generator Current Monitor



Designed to allow you to monitor the amount of current being produced by your whole-house generator. Back-lit LCD display shows amperage and peak values. Display ranges up to 200A available. Comes with Display Module, Transducer Module and DC power supply.

**Price: \$175.00** +\$10 S&H

To order, please ask your generator supplier or go to

[www.Gen-R-Mind-R.com](http://www.Gen-R-Mind-R.com)

Or

[www.SimpleCircuitBoards.com](http://www.SimpleCircuitBoards.com)

**Note: These are built to order. Please allow up to 2 weeks for delivery.**

#### Description:

I recently installed a whole house generator on my house to provide power in the event of a power failure. I was surprised to find that there was no easy way to monitor the current draw on the generator so I never knew how close I was getting to the maximum limit. So, I designed and built the **Gen-R-Mind-R** to monitor and display the current on both legs of power being supplied by the generator. I also added the feature of recording the peak loads that can be displayed and reset at the press of a button. I can now get a feel for my load requirements, load balance and am able to adjust my power usage. For instance, if I want to dry a load of laundry, I might turn off my central AC for a while so as to not overload my generator and trip the breaker. The current for both legs is displayed on a 2-line back-lit LCD. The **Gen-R-Mind-R** comes with a DC power supply and the Current Transducer Module that will go around the 2 legs of power being monitored. The display range is 5 to 75 Amps (sufficient for generators up to 15KW). Higher ranges available upon request. Display resolution is 1A.

#### Details:

As mentioned above, this was designed to display the current passing through 2 legs of AC power. It also records the peak current for each leg that can be displayed by pressing the Max Display / Reset button (see picture below). Pressing the Max Display / Reset button a second time resets the maximum values to 0. If you press the Normal Display button before pressing the Max Display / Reset button a second time, the display goes back to displaying the actual current without resetting the maximum values. The LCD is back-lit for low light conditions. I supply the Transducer Module that needs to be installed on the 2 legs of power being monitored (see pictures below). The Transducer Module is connected to the display box via a small telephone-type wire. You may have to drill a small hole in the

side of your transfer switch enclosure to pass this wire through (make sure wire is protected against any sharp edges). I was able to pass the wire through a gap between the main enclosure housing and the cover. The wire should be able to be moved – i.e., not pinched. A power supply is included (this should be plugged into a circuit that is powered by the generator during a power outage). The Display Box must be protected from the weather and has a magnetic back so you can just stick it to the outside of the transfer switch box or it can be permanently mounted on the wall up to 7 feet away (longer cables are available upon request). The LCD on the Display Box is back-lit so that it is easy to read in the dark. Also, other amperage ratings are available – up to 200A.

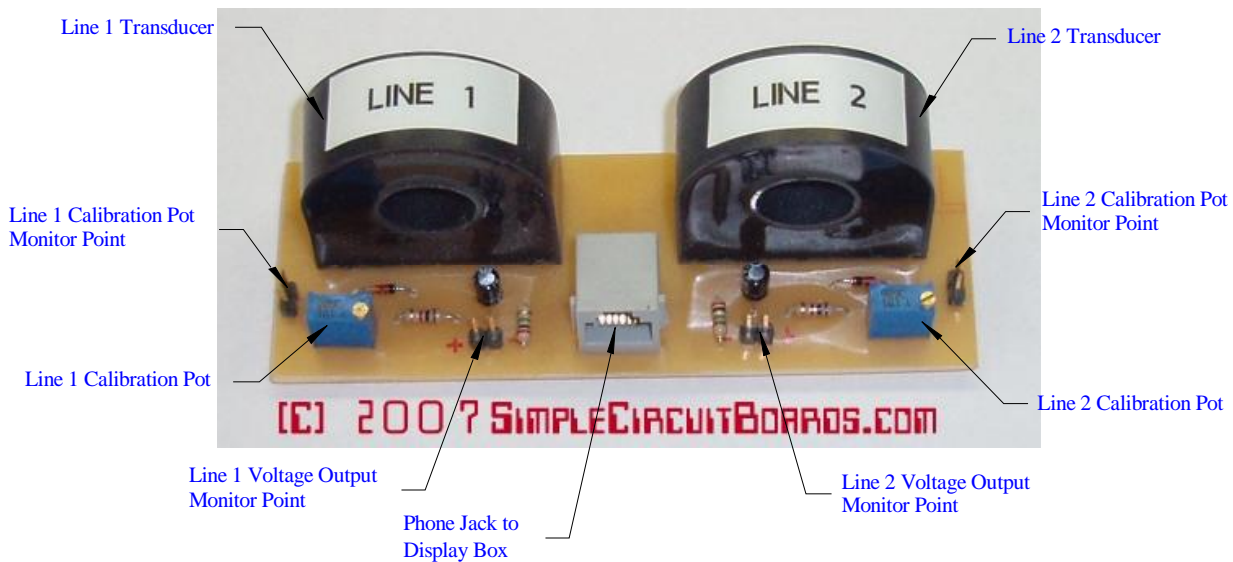
**How It Works:**

Each of the 2 transducers on the Transducer Module convert the current passing through the wire to an AC voltage that is representative of the current. For this Transducer Module, this is 0 – 5V that represents 0 – 75A. This voltage is converted to a DC voltage which is read by the microcontroller located in the display box. This means that only low voltage, DC power comes out of the transfer switch enclosure. The microcontroller does the conversion and displays the values.

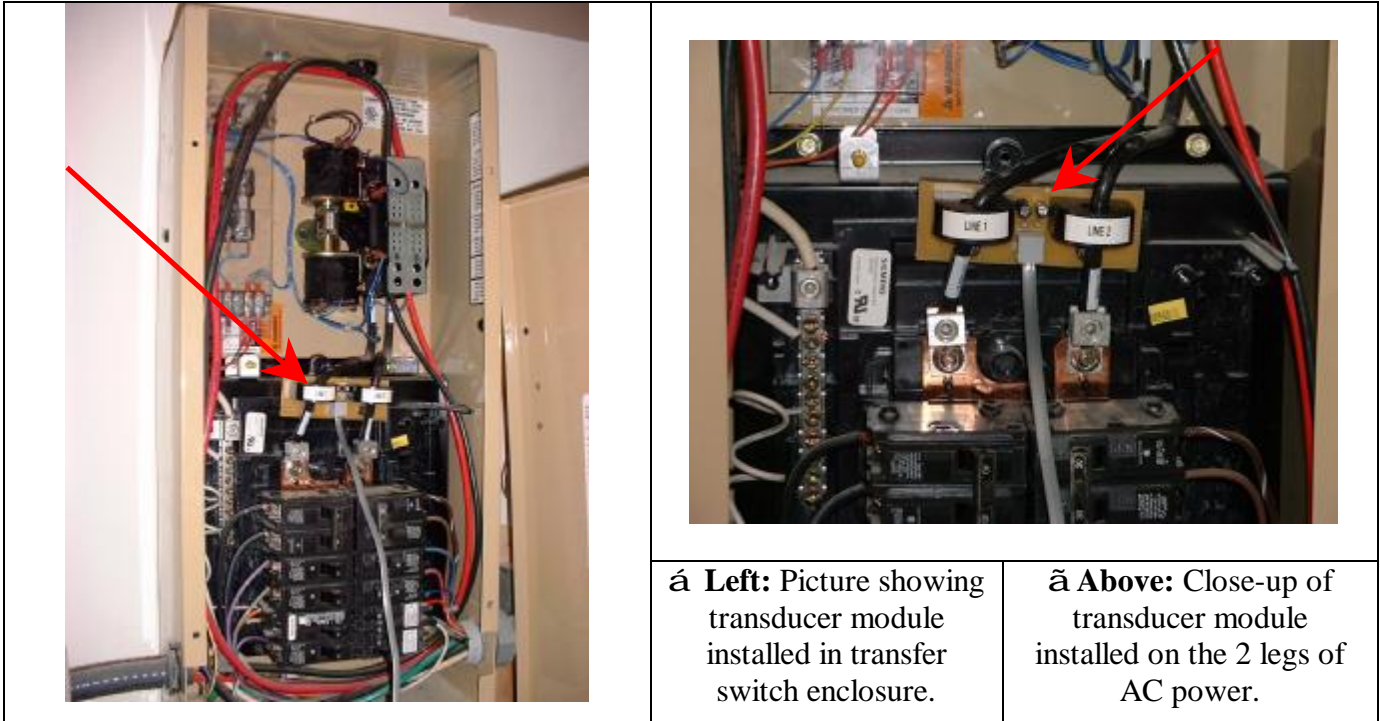
The Gen-R-Mind-R was designed for generator systems that have a transfer switch that will only supply the circuits that are connected to it. There are some installations where the transfer switch controls all of the power going to the house. For example, my transfer switch only controls the circuits for my bedrooms, bathrooms, kitchen, some circuits in the living room and the A/C – all of the circuits that I felt that I needed during a power outage and picked so as not to overload my generator if all of them were being used. These circuits had to be re-routed from my main breaker panel to the circuit breakers in the transfer switch enclosure. I have seen other installations where the transfer switch is installed before the main breaker – meaning that all power going to the house goes through the transfer switch. In most houses, the main breaker is rated for 200A and the generator might be rated at 15 KW or about 65A. This means that it can be very easy to overload your generator during a power outage (a great reason to have a Gen-R-Mind-R installed!!!). If you have this type of installation, you should order a transducer module rated at 200A even though your generator is only rated for 65A.

**Miscellaneous Information:**

- It is **HIGHLY** recommended that you have a qualified electrician install the Transducer Module in your transfer switch enclosure as contact with any circuit could be potentially fatal!
- Every attempt has been made to make this as accurate as possible, actual accuracy may vary by several amps at the high range of the readings. This may be the result of the resolution of the microcontroller A/D conversion or external interference. Therefore, this is only intended to be used for informational purposes and should not be used for any critical operation or decision.

**Display Close-up:****Transducer Close-up:****Transducer Calibration:**

When I build the Transducer Module, I calibrate the outputs on the bench. This will get the calibration very close but you may need to adjust it slightly once it is installed on your system. This will simply entail using a clamp-on amp meter and adjusting the Calibration Pots (see diagram above) until the display on the Gen-R-Mind-R matches the display on the amp meter. You will notice on the diagram there are several Monitor Points. These will give you the ohms of the Calibration Pots and the actual voltages being sent to the Display Box. These will probably not be of any use to you – they are for initial calibration and trouble-shooting.

**Transducer Installation:****Specifications:**

- Input Power: 12C VDC – 200 mA
- Resolution: 1A
- Range: 5 to 75A per leg (up to 200A available)
- Display Dimensions: 2.5 x 5.35 inches
- Transducer Board Dimensions: 1.5 x 4.25 inches

**Disclaimer:**

These boards are designed for educational/informational use only. In no circumstances should this be used in critical situations where failure could mean injury or property damage.

Please check out the other circuit board designs that I offer at [www.SimpleCircuitBoards.com](http://www.SimpleCircuitBoards.com).

For more information, contact me at:

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