

Data Acquisition System for Synchronous Generator Transient Performance

PREW Generation



Meeting Agenda

- Project Status
- Testing Current/ Voltage LEMs
- Termination accessory



Project Status

- Getting Labview License.
- First Snapshot.
- Testing Current/Voltage LEM's.



Current LEM

Current Transducer LA 125-P

For the electronic measurement of currents : DC, AC, pulsed..., with a galvanic isolation between the primary circuit (high power) and the secondary circuit (electronic circuit).

$$I_{PN} = 125 \text{ A}$$



Electrical data

I_{PN}	Primary nominal current rms		125	A
I_{PM}	Primary current, measuring range		0 .. ± 200	A
R_M	Measuring resistance @			
			$T_A = 70^\circ\text{C}$	$T_A = 85^\circ\text{C}$
			$R_{M \text{ mini}}$ $R_{M \text{ maxi}}$	$R_{M \text{ mini}}$ $R_{M \text{ maxi}}$
	with $\pm 12 \text{ V}$	@ $\pm 125 \text{ A}_{\text{maxi}}$	5 52	14 50 Ω
		@ $\pm 200 \text{ A}_{\text{maxi}}$	5 20	14 18 Ω
	with $\pm 15 \text{ V}$	@ $\pm 125 \text{ A}_{\text{maxi}}$	25 74	40 72 Ω
		@ $\pm 200 \text{ A}_{\text{maxi}}$	25 34	40 ¹⁾ 40 ¹⁾ Ω
I_{SN}	Secondary nominal current rms		125	mA
K_N	Conversion ratio		1 : 1000	
V_C	Supply voltage ($\pm 5 \%$)		$\pm 12 \dots 15$	V
I_C	Current consumption		16 (@ $\pm 15 \text{ V}$) + I_S	mA

Features

- Closed loop (compensated) current transducer using the Hall effect
- Printed circuit board mounting
- Isolated plastic case recognized according to UL 94-V0.

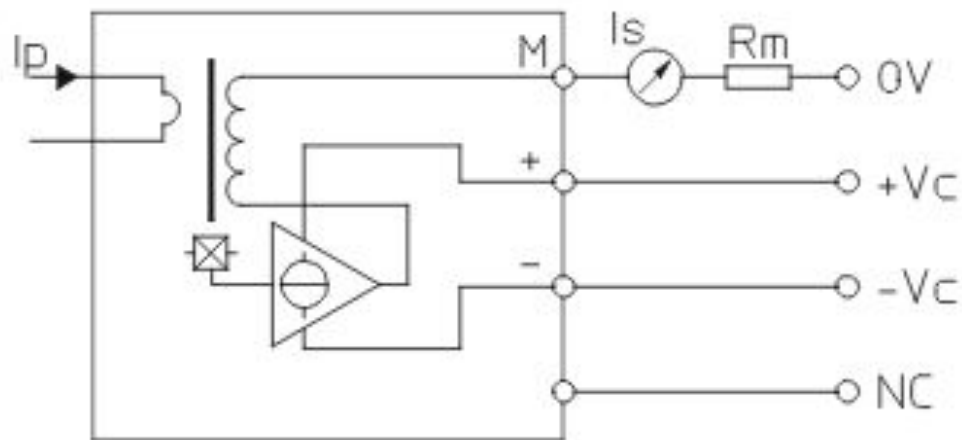
Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift



Current LEM

Connection

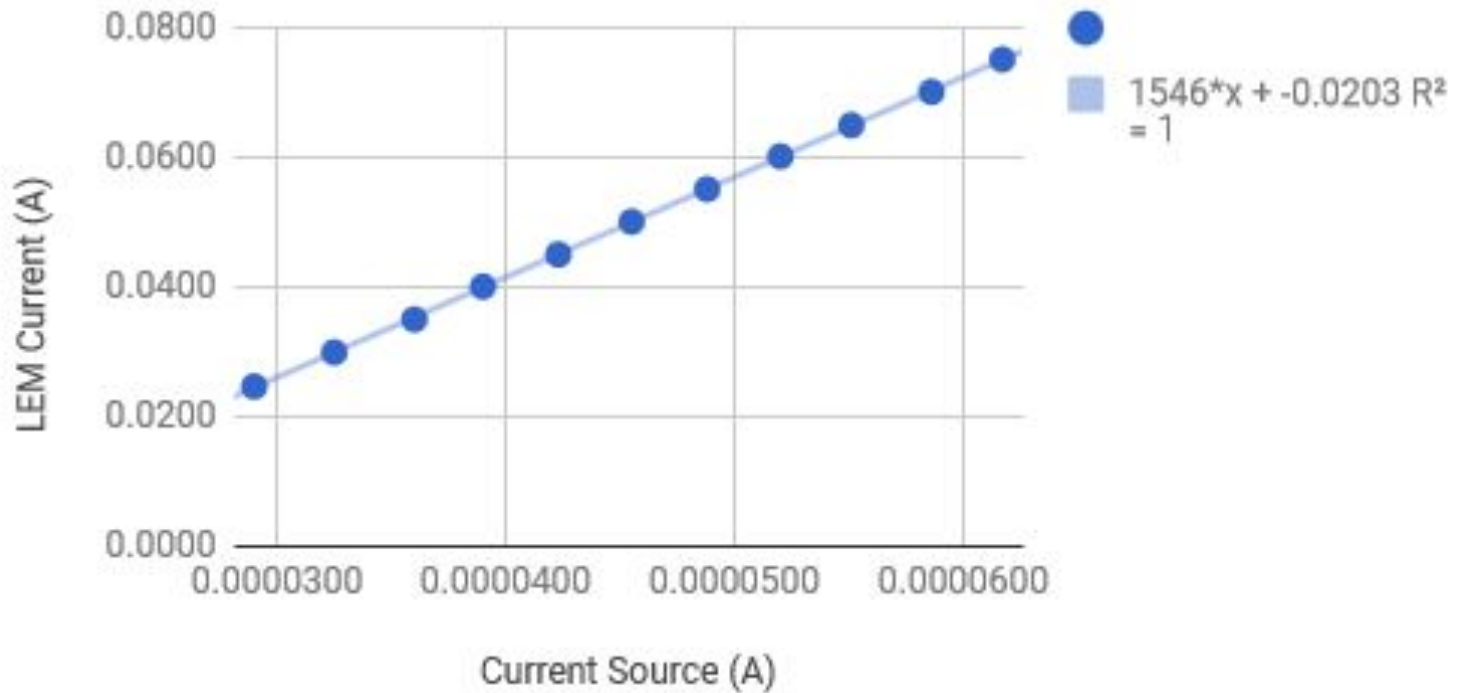


Testing Board 1

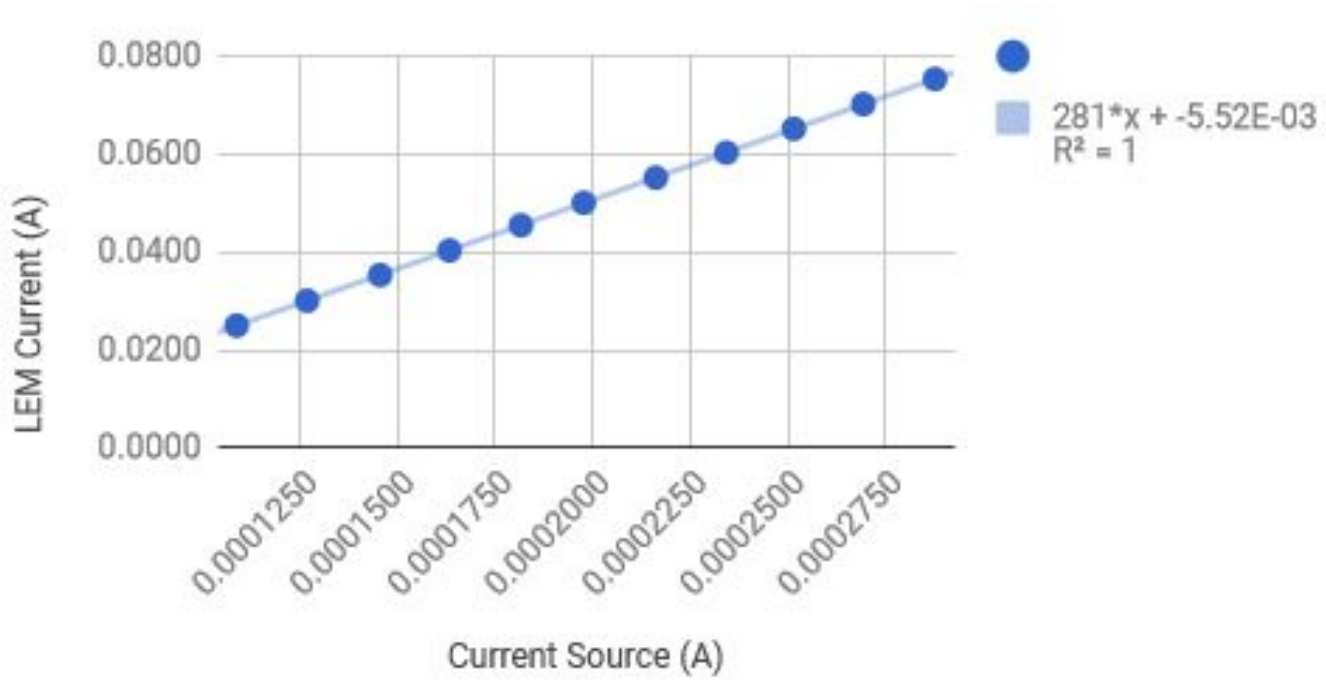
DC Source (V)	Current Source (A)	LEM Voltage (V)	LEM Current (mA)	Current (mV)
4.94	0.0247	0.087	0.0290	7.6
5.99	0.0300	0.106	0.0325	8.7
7.01	0.0351	0.125	0.0360	9.7
8.02	0.0401	0.143	0.0390	10.8
9.01	0.0451	0.161	0.0423	11.8
10.02	0.0501	0.179	0.0455	12.8
11.03	0.0552	0.197	0.0488	13.8
12.04	0.0602	0.216	0.0520	14.9
13.00	0.0650	0.234	0.0551	15.9
14.03	0.0702	0.252	0.0586	16.8
15.03	0.0752	0.27	0.0617	17.9



Currents Relationship in B1



Currents Relationship in B2 L1-L2



LEM I/O Relation Equations

Board 1 Current In vs. Current Out	$y = 1556x - 0.0203$
Board 2 L1-L2 Current In vs. Current Out	$y = 281x - 5.25 \cdot 10^{-3}$
Board 2 L1-L3 Current In vs. Current Out	$y = 1553x + 3.47 \cdot 10^{-3}$
Board 1 Current In vs. Voltage Rm Out	$y = 0.204x + 2.59 \cdot 10^{-3}$
Board 2 L1-L2 Current In vs. Voltage Rm Out	$y = 1.05x + 5.41 \cdot 10^{-3}$
Board 2 L1-L3 Current In vs. Voltage Rm Out	$y = 0.196x - 2.13 \cdot 10^{-3}$



Screw Terminal Block (Shielded)



Thank you

Any Feedback?

