

LEM

Life Energy Motion

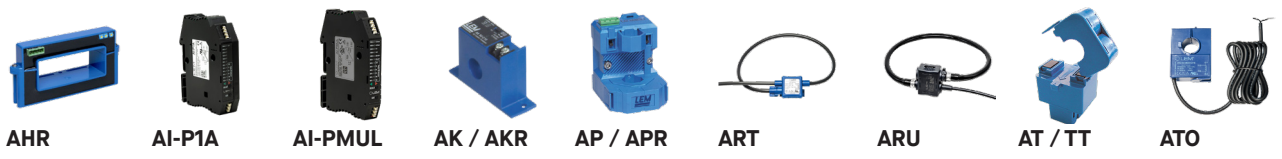
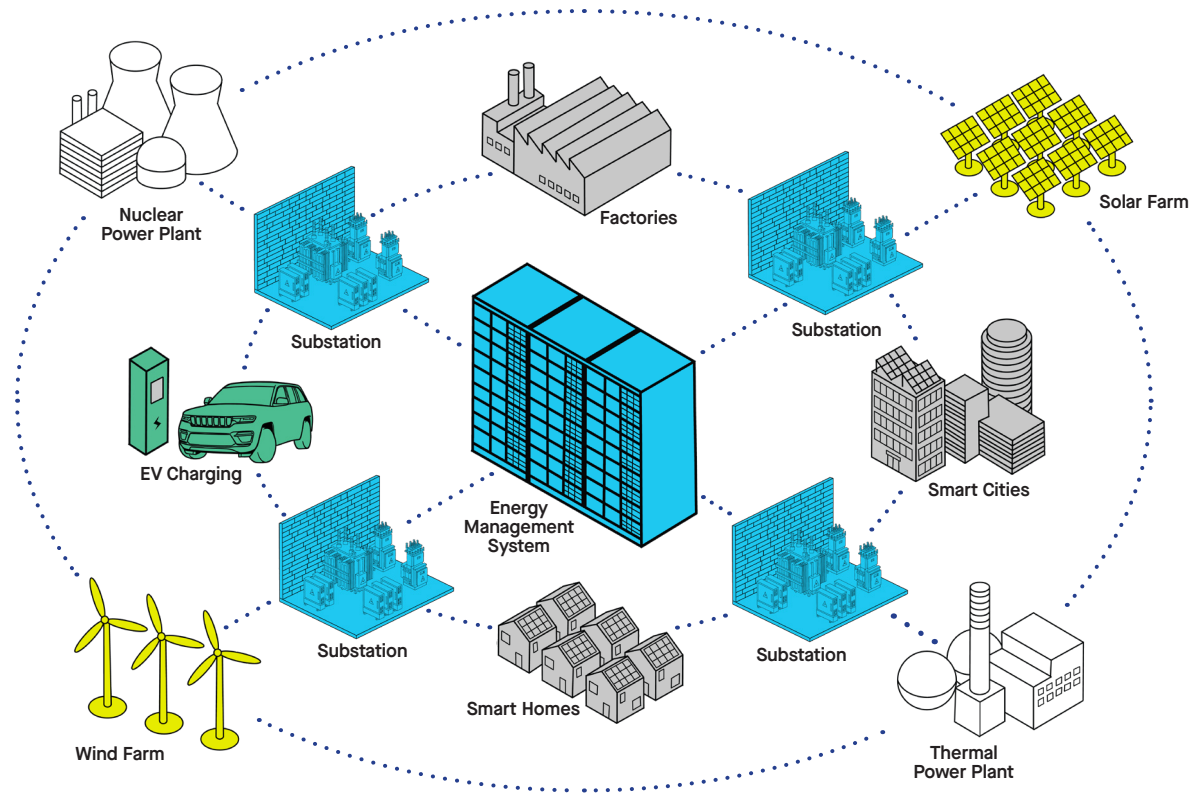
SMART GRID SOLUTIONS

Electrical Measurement Solutions for Smart Grid Applications



Smart Grid Solutions

The smart grid is the backbone of our energy system, which is amidst a radical transition as millions of electric vehicles hit the roads and terawatts of renewable energy capacity are installed in the grid. LEM's current sensors are integral to smart infrastructure, enhancing efficiency, sustainability, and real-time monitoring capabilities. The smart grid utilizes these sensors, data analytics, and communications to optimize the production, distribution, and consumption of electricity reducing the frequency and duration of power outages, and improving the reliability and efficiency of the electric grid.



	AHR	AI-P1A	AI-PMUL	AK / AKR	AP / APR	ART	ARU	AT / TT	ATO
Bandwidth	20Hz - 6000Hz	1500Hz	1500Hz	10Hz - 400Hz	30Hz - 2000Hz	300kHz - 420kHz	320kHz	50Hz - 60Hz	50Hz - 60Hz
Consumption	30mA - 35mA	350mA	100mA	-	30mA	-	-	-	-
Current Range Max	2000A - 3000A	5000A	5000A	5A - 2375A	10A - 400A	-	-	5A - 150A	6A - 176.7A
Supply Voltage	20V - 50V	16V - 31V	10V - 32V	24V	12V - 24V	Self Powered	Self Powered	Self Powered	20V - 28V; Self Powered
Installation	On Primary Fastening	DIN Rail	DIN Rail	Panel / DIN Rail	Panel / DIN Rail	On Primary Fastening	On Primary Fastening	On Primary Fastening	DIN Rail / On Primary Fastening
Output	Current	Current	Current	Current	Current	Voltage	Voltage	Current	Current
Overall Accuracy	1%	0.5%	0.5%	1%	1%	0.5%	0.5%	1.5%	1% - 1.5%
Technology	Open Loop Hall Effect	Integrator	Integrator	Current Transformer	Prime Air-Core	Rogowski Coil	Rogowski Coil	Current Transformer	Current Transformer

EV Charging Infrastructure:

The integration of electric vehicles into the grid requires careful management of power flows. Current sensors monitor the charging process, managing energy demand from the charging stations and help balance the load during peak usage times.

Fault Detection:

Current sensors help detect faults such as overcurrents, short circuits, and ground faults. In case of an abnormal current surge, they trigger protective mechanisms, isolating the affected area to prevent widespread outages, minimizing grid downtime, and protecting infrastructure from potential damage.





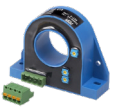





Integration of Renewable Energy:

Distributed energy resources, such as solar panels and wind turbines, are integrated into the grid utilizing current sensors. They monitor the power output from these renewable sources and ensure that the supply remains balanced across all phases enabling utilities to manage intermittent renewable power efficiently, contributing to grid stability and better energy distribution.

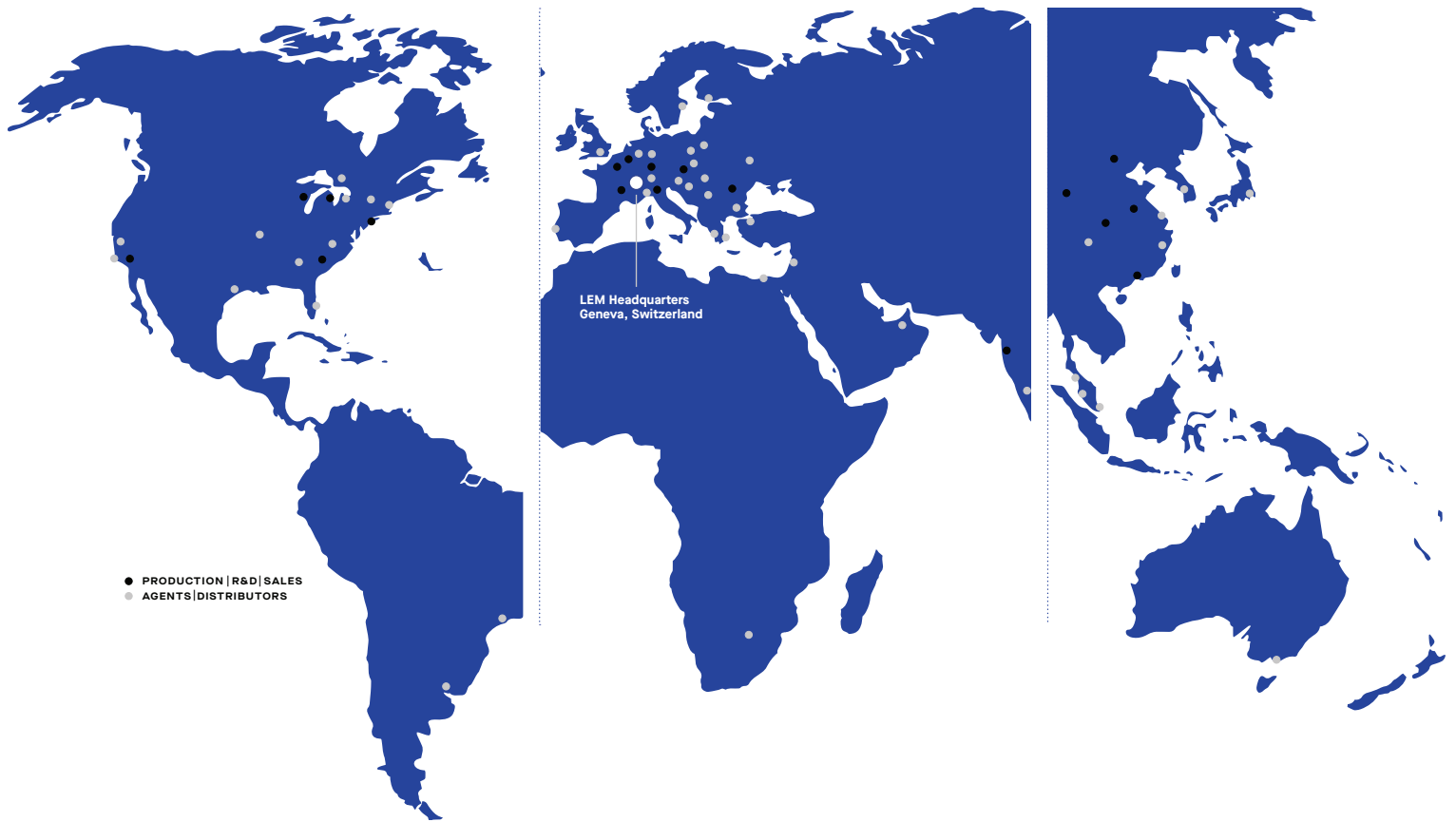
Power Monitoring & Theft Detection:

Current sensors monitor critical parameters to ensure that the power being delivered from the grid meets the required standards. Poor power quality can damage industrial equipment and lead to inefficiencies, but current sensors help detect and correct these issues.

Energy theft is a significant issue in many regions. Current sensors help detect unusual consumption patterns or discrepancies between power supplied and consumed, indicating potential theft. By identifying and addressing unauthorized usage, utilities can reduce revenue losses and improve grid efficiency.

									
CDSR	DCBM 100	DK	DCBM 400/600	DHR	HOP	HTR	HTRS	ITL	OLCI FRS
2kHz	100Hz	-	100Hz	20Hz - 6000Hz	4kHz - 8kHz	10kHz	30kHz	50kHz	1000kHz
50mA	80mA	100mA	400mA	30mA	20mA	20mA	50mA	0.35A	80mA - 140mA
32A Per Phase +/- 150mA (leakage)	80A 1000V DC	20A - 400A	400A & 600A 1000V DC	600A - 1800A	300A - 3000A	100A - 1000A	20A	12000A	9000A
3.3V	+12, +24V DC	20V - 50V	+12, +24V DC	20V - 50V	12V-15V	12V - 15V	26V	24V	12V - 24 V
1 Phase - 2 Jumpers 3 Phases + N - 4 Jumpers	DIN Rail/ Screw Mounting	Panel / DIN Rail	DIN Rail/ Screw Mounting	Panel	Panel / On Primary Fastening	Panel	Panel	Panel	On Primary Fastening
SPI + Analog Tripping Output	Ethernet HTTP REST	Current	Ethernet HTTP REST	Voltage	Current	Current	Current	Current	Voltage
+/- 0.5mA @ 1mA	Class B (1%)	1% - 2%	Class B (1%)	1%	2%	2%	2% - 5%	0.06%	0.5%
Open Loop Fluxgate	Bi-directional Meter	Open Loop Hall Effect	Bi-directional Meter	Open Loop Hall Effect	Open Loop Hall Effect	Open Loop Hall Effect	Open Loop Hall Effect	Closed Loop Fluxgate	Open Loop

Global Support Network



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