

REGULATORS AND EXCITATION SYSTEMS ARE AT THE HEART OF INDUSTRIAL ALTERNATORS PERFORMANCE AND RELIABILITY.

While there is a wide range of Analogue AVRs to provide reliable excitation and regulation for Shunt, AREP or PMG alternators, Leroy-Somer have designed digital voltage regulators to integrate easily in complex systems, providing regulation and security features to ensure optimal performance of the installation.

TEKSAN use D350 model Digital AVR as standard in its UL2200 Listed generator sets.

LEROY-SOMER AVR RANGE & FEATURES	D350	D550	D700	R120	R150	R180	R220	R250
Technology	Digital			Analog				
SHUNT	✓	✓	✓	✓	✓		✓	✓
AREP / AREP+	✓	✓	✓			✓		
PMG	✓	✓	✓			✓		
Rated Excitation Current (A, 55°C)	5	8	20	4	6	6	3.2	5
Regulation Accuracy (± %)	0.25	0.25	0.25	1	0.8	0.5	0.5	0.5
Voltage Setting Range (± %)	30	30	30	10	10	5	5	5
Paralleling Between Gensets	✓	✓	✓		✓	✓		
Three Phase Sensing	✓	✓	✓					
LAM	✓	✓	✓					✓
Over-excitation Limitation	✓	✓	✓	✓	✓			
Short Circuit Current Limitation	✓	✓	✓					
Grid paralleling (PF / kVAr)		✓	✓					

The D350 digital AVR for industrial alternators provides excitation current up to 5 A with excellent reliability for both PMG and AREP Excitation system.

D350 includes advanced protections such as over-excitation limitation and voltage sensing loss. It also includes speed detection capabilities, with over- and under-speed alarms. D350 also features voltage droop for genset parallel operation, and it is equipped with a Load Acceptance Module (LAM) to handle load impact events.



REGULATION FEATURES

PID - PID is the regulation system function which combines different rules (Proportional, Integral, Derivative) to stabilize the current produced by the alternator. Tuning this function allows to optimize the response time of the system to reach the voltage set point, or to stabilize it quickly in case of fluctuations. It is an essential component of any regulation system.

U/f function - U/f is a function designed to handle underspeed situations. It allows to adapt the alternator voltage according to the rotation speed of the prime mover. If the system speed is lower than the nominal speed, the alternator voltage is reduced. This prevents saturation in the excitation system and protects the alternator rotor from any damage.

LAM function - The LAM (Load Acceptance Module) is a function that adapts the alternator voltage according to the rotation speed of the prime mover. It is triggered in the event of a load impact. The LAM considerably reduces the alternator voltage which results in decreased power demand on the prime mover.

As the speed climbs back to normal, the alternator voltage re-established.

Three-phase sensing - The regulator needs voltage measurement in order to maintain the voltage on the alternator output terminals. Three phases sensing means that voltage detection and measurement is done on all three phases of the alternator, which allows to regulate the average voltage. This means that regulation is more precise and safer.

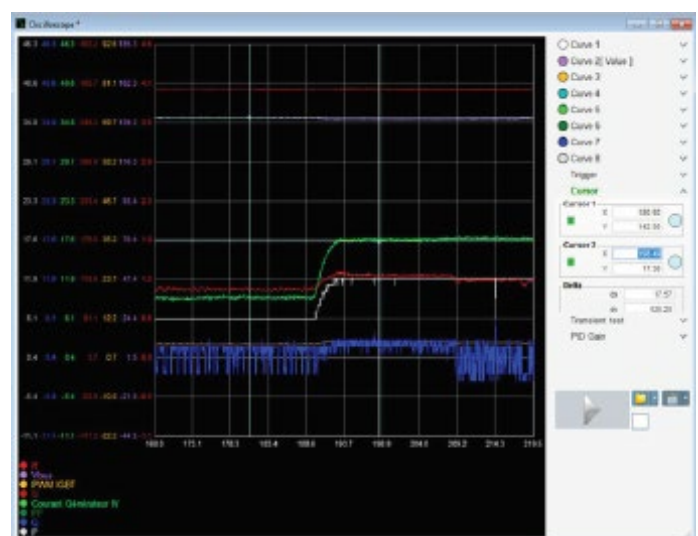
Short circuit current limitation - The short circuit current limitation is triggered during short circuits. It is adjusted on the regulator and allows to limit the delivered current during 10 seconds maximum. This prevents the alternator from getting damaged by a too strong current.

EASYREG ADVANCED

EasyReg Advanced is the dedicated software to configure and monitor Leroy-Somer digital Automatic Voltage Regulators (AVR). It is compatible with the D350, D550 and D700.

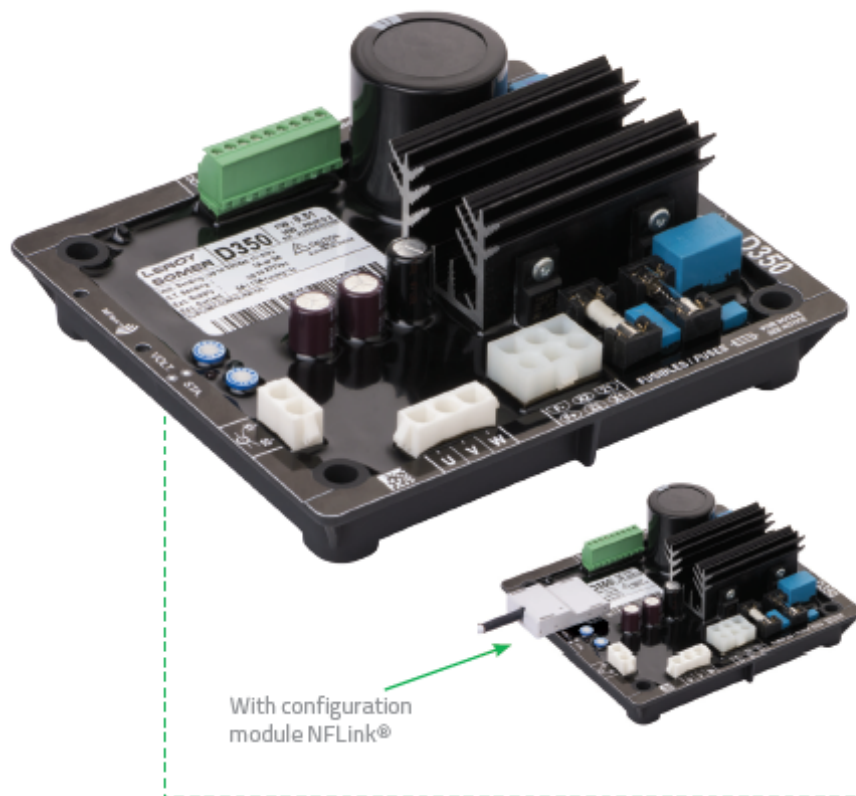
EasyReg Advanced includes a complete set of tools:

- Step-by-step configuration of the alternator parameters, regulation modes, limits, wiring, PID, I/O and protection devices.
- Monitoring and analysis tools, including an oscilloscope, a monitoring panel, and harmonic analysis.
- Grid code protection parameters definition and synchronization parameters for grid paralleling



D350 DIGITAL AVR

FOR ALTERNATORS WITH SHUNT, AREP OR PMG EXCITATION



CHARACTERISTICS

- Rated excitation current: 5 A
- Maximum excitation current: 10 A for 10 s
- Voltage regulation accuracy: $\pm 0.25\%$
- Excitation: SHUNT, AREP or PMG
- Voltage sensing: three-phase or single-phase - 530 VAC max.
- CT input: yes (1 A and 5 A)
- Mate N Lok connectors

MAIN FUNCTIONS

- Quadrature droop function
- Over-excitation protection
- Loss of sensing
- Stator current monitoring
- U/F
- LAM function
- Soft Start function
- Voltage soft recovery
- Two configuration modes can be activated by a digital input (eg. 50/60 Hz)
- Event logger

The D350 is a digital automatic voltage regulator (AVR) for alternators which require rated field current up to 5 A.

It offers numerous control and protection functions for the various components of generator sets, especially for managing short-circuits and load impacts.

The D350 can be configured using the Leroy-Somer EasyReg Advanced software.

For easier maintenance and investigations in the event of problems, the D350 also offers an event logger function and an NLink® wireless communication module for setting parameters and retrieving data.

The D350 conforms to standard IEC 60034-1 and is certified UL508 and CSA.

CONNECTIONS AND COMMUNICATION

- Inputs
 - 1 x analog input
 - 1 x digital input
 - 1 x thermal sensor input (configurable in PT100 or PTC)
- Outputs
 - 2 x digital outputs
- Event logger
- NFLink® module for configuration
- Mate N Lok connectors

CONDITIONS OF USE

- Operation: -40°C to +65°C
- Storage: -55°C to +85°C
- Relative humidity: up to 98%
- Maximum impact: 9 g on all 3 axes

COMPATIBILITY

	LSA 40	LSA 42.3	LSA 44.3	LSA 46.3	LSA 47.2	LSA 49.3	LSA 50.2
SHUNT	✓	✓	✓	✓	✓	✓	✓
AREP	✓	✓	✓	✓	✓	✓	✓
PMG		✓	✓	✓	✓	✓	✓
	TAL 040	TAL 042	TAL 044	TAL 046	TAL 0473	TAL 049	
SHUNT	✓	✓	✓	✓	✓	✓	
AREP	✓	✓	✓	✓	✓	✓	
PMG		✓	✓	✓	✓	✓	

DIMENSIONAL DRAWING

