



GENERATOR PROTECTION



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G60 GENERATOR PROTECTION SYSTEM

Comprehensive protection for AC generators.

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The G60 Generator Protection System, a member of the UR Family of protection relays, provides protection for AC generators. It may be used on any size of generator driven by steam, gas, hydraulic or other turbines.

G30 GENERATOR PROTECTION SYSTEM

Cost effective protection of small to medium sized generators, includes unit transformer protection.

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The G30 Generator Protection System, part of the UR family of protection relays, provides protection for small to medium sized generators and for applications needing combined generator and transformer protection.

489 GENERATOR PROTECTION SYSTEM

Economical protection, monitoring and metering for generators.

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The 489 Generator Protection System, a member of the SR Family of protection relays, provides economical protection, monitoring, and metering functions. It can be used as primary or backup protection on synchronous or induction generators of 25, 50, or 60 Hz. It may be applied in primary, backup and co-generator applications.

G650 GENERATOR PROTECTION SYSTEM

High performance generation protection relay.

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The G650 Generator Protection System, a member of the 650 Family of protection relays, provides protection and management capabilities for small to medium sized generators. It combines protection with external communications and a distributed I/O capability.

W650 GENERATOR PROTECTION SYSTEM

Advanced wind turbine protection and control system.

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The W650 Generator Protection System, a member of the 650 Family of protection relays, is a machine controller management device. It may be used to protect and control wind generating machines, and can operate as a packaged generator sets mains failure detector.

MIGII GENERATOR PROTECTION SYSTEM

Three-phase protection for small generators.

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The MIGII, a member of the M II Family of protection relays, provides protection for small generators.



FEATURES	DEVICE	MIG	W650	G650	489	G30	G60
PROTECTION							
Overspeed	12				■		
Speed Switch	14				■		
Distance Backup	21				■		
Overexcitation	24				■		■
Synchronism check	25				■		
Phase/Auxiliary Undervoltage	27P/A		P	P	P	P/A	P/A
Stator Ground (3rd Harmonic)	27TN				■	■	■
Ground Undervoltage (Fundamental)	27GN				■	■	■
Sensitive Directional Power (F/R/LF)	32		■	■	■	■	■
Bearing RTD	38				■	■	■
Loss of Excitation Impedance or React. Power	40				■	■	■
Current Unbalance	46				■	■	■
Negative Sequence Overcurrent	50_2/51_2	■	■	■	■	■	■
Voltage phase reversal	47		■	■	■	■	■
Inadvertent/Accidental Energization	50/27				■	■	■
IOC, Ground/Neutral/Phase/Negative Sequence	50G/N/P/Q	P/N	G/N/P	G/N/P/Q	G/N/P/Q	G/N/P	G/N/P
IOC, Sensitive Ground	50SG				■	■	■
TOC, Ground/Neutral/Phase/Negative Sequence	51G/N/P/Q	P/N	G/N/P	G/N/P	G/N/P	G/N/P	G/N/P
TOC, Sensitive Ground	51SG		■		■	■	■
Split Phase	50SP				■	■	■
Voltage Restraint Overcurrent	51V		■	■	■	■	■
Breaker Failure	50BF				■	■	■
Phase/Auxiliary/Neutral Overvoltage	59P/A/N		P/A/N	P/N	P	P/A/N	Logic P/A/N
Ground Overvoltage	59GN			■	■	■	■
100% Stator Ground	64G				■	■	■
Current Directional, Ground/Neutral/Phase/Neg. Seq.	67P/G/N/Q		P/G/N		G	P/N/Q	P/N/Q
Out of Step Blocking	68					■	■
Out of Step Tripping	78					■	■
Voltage Transformer Fuse Failure	VTFF			Optional		■	■
Under/Overfrequency	81U/O		3U & 3O	Optional 3U & 3O	2U & 2O	■	■
Anti-Islanding Protection/Rate of Change of Frequency	81R			■		■	■
Lockout Functionality	86				■	■	■
Ground Differential	87N	■		■		■	■
Differential	87S				■	■	■
Group Differential	87T					■	■
Monitoring of Reactive Power			■	■	■		
CONTROL							
Remote Display							■
Redundant Power Supply			Optional	Optional			Option
Non-volatile latches						■	■
Programmable Elements						■	■
Programmable Logic		■	■	■		■	■
FlexElements™						■	■
Digital Inputs		2	Up to 32	Up to 32	7	80	80
Contact Outputs		5	Up to 16	Up to 16	6	64	64
Virtual Inputs/Outputs			Up to 32	Up to 32		32/64	32/64
Direct Inputs/Outputs			Up to 512	Up to 512		32	32
Trip/Close Coil Supervision			Optional	Optional	Trip	Trip/Close	Trip/Close
User-Programmable LEDs		■	■	■		■	■
User-Programmable Push Buttons			■	■		■	■
User-Programmable Self Test						■	■
Selector Switch						■	■
Digital Counters		■	■	■		■	■
Digital Elements			■	■		■	■
IRIG-B Input			■	■		■	■
Analog Inputs/Outputs						■	■
RTD Inputs					12	8	8
MONITORING & METERING							
Power Factor			■	■	■	■	■
Current		■	■	■	■	■	■
Voltage			■	■	■	■	■
Voltage 3rd Harmonic			■	■	■	■	■
Power - Apparent, Real, Reactive			■	■	■	■	■
Current, MW, MVA, Mvar Demand			■	■	■	■	■
Energy			■	■	■	■	■
Frequency			■	■	■	■	■
Temperature						■	■
User Programmable Fault Reports						■	■
Event Recorder - Number of Events		24	479	479	40	1024	1024
Oscillography - Cycles/Sampling Rate		24	128/64	128/64	64/12	93.5/16	93.5/16
Trip Counters						■	■
Data Logger			■	■	■	■	■
COMMUNICATIONS							
RS232/RS485 Ports		■	■	■	■	■	■
Ethernet Communications					■	■	■
Fiber Optic Port			Optional	Optional		■	■
GE Modem						■	■
ModBus Protocol		■	■	■	■	■	■
ModBus User Map		■	■	■	■	■	■
DNP3 Protocol			■	■	■	■	■
EGD Protocol						■	■
Peer-to-peer communication (Goose)						■	■
IEC 60870-104						■	■
IEC 61850 Protocol						■	■
Simple Network Time Protocol			■	■			■

* For the most current comparison list, access us online at: www.GEMultilin.com/selector/generator.pdf