	ANSI code 27, 59	ANSI code 59	ANSI code 27
			
	RMV-112D	**RMV-122D**	**RMV-132D**
Main functions:	**Under- /overvoltage protection:** - timer controlled tripping - adjustable hysteresis	**Overvoltage protection (2 levels):** - timer controlled tripping - adjustable hysteresis	**Undervoltage protection (2 levels):** - timer controlled tripping - adjustable hysteresis
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√	√	√
Meas. voltage (U_n): 57.7...690V AC	√	√	√
Meas. current (I_n): 0.4...5.0A	-	-	-
Frequency range: 40..45...65..70Hz	√	√	√
Outputs:	1 minimum and 1 maximum relay output Settings: ±20% of U nom Delay: 0.5...10 s Hysteresis: 1...10% of U nom	2 maximum relay outputs Settings: 0...+20% of U nom Delay: 0.5...10 s Hysteresis: 1...10% of U nom	2 minimum relay outputs Settings: 0...-20% of U nom Delay: 0.5...10 s Hysteresis: 1...10% of U nom
Measuring system:	Δ, 3 phase 3 wire, Y, 3 phase 4 wire	Δ, 3 phase 3 wire, Y, 3 phase 4 wire	Δ, 3 phase 3 wire, Y, 3 phase 4 wire
Approved by classification societies:	√	√	√

	ANSI code 27, 59		
			
	RMV-142D		
Main functions:	**Under- /overvoltage protection:** - timer controlled tripping - adjustable hysteresis		
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√		
Meas. voltage (U_n): 57.7...690V AC	√		
Meas. current (I_n): 0.4...5.0A	-		
Frequency range: 40..45...65..70Hz	√		
Outputs:	1 minimum and 1 maximum relay output Settings: ±20% of U nom Delay: 0.5...10 s Hysteresis: 1...10% of U nom		
Measuring system:	2 phase, single phase		
Approved by classification societies:	√		

	ANSI code 50, 51	ANSI code 50, 51	ANSI code 50, 51
			
	RMC-111D	**RMC-121D**	**RMC-122D**
Main functions:	**Short circuit relay:** - short circuit protection - timer controlled tripping	**Short circuit current relay:** - short circuit protection - timer controlled tripping	**Overcurrent and short circuit relay:** - short circuit/overcurrent protection - timer controlled tripping
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√	√	√
Meas. voltage (U_n): 57.7...690V AC	-	-	-
Meas. current (I_n): 0.4...5.0A	√	√	√
Frequency range: 40..45...65..70Hz	√	√	√
Outputs:	1 maximum relay output Setting: 100...400% of I nom Delay: 0.1...1/5/10 s	1 maximum relay output with 2 sets of contacts Setting: 100...400% of I nom Delay: 0.1...1/5/10 s	2 maximum relay outputs Settings: 50...150% of I nom, 100...400% of I nom Delay: 0.1...1/5/10 s, 0.5…20/60/120 s
Measuring system:	3 phase	3 phase	3 phase
Approved by classification societies:	√	√	√

	ANSI code 87	ANSI code 50, 51	ANSI code 50N, 51N
			
	RMC-131D	**RMC-132D**	**RMC-142D**
Main functions:	**Differential current relay:** - protection against short circuits and leakage current in the generator winding - timer controlled tripping	**Dual overcurrent relay:** - overcurrent protection - timer controlled tripping	**Stator earth fault relay:** - earth fault protection at 2 levels - built-in filter for 3rd harmonic - timer controlled tripping
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√	√	√
Meas. voltage (U_n): 57.7...690V AC	-	-	-
Meas. current (I_n): 0.4...5.0A	√	√	√
Frequency range: 40..45...65..70Hz	√	√	√
Outputs:	1 maximum relay output with 2 sets of contacts Settings: 4...40% of I nom Delay: 0.1...1/5/10 s	2 maximum relay outputs Settings: 50…150% of I nom Delay: 0.5…20/60/120 s	2 maximum relay outputs Settings: 2…20%, 10…110% of I nom Delay: 0.5…20/60/120 s
Measuring system:	3 phase	3 phase	Single phase
Approved by classification societies:	√	√	√

	ANSI code 32	ANSI code 32	ANSI code 32
			
	RMP-111D	**RMP-112D**	**RMP-121D**
Main functions:	**Overload relay:** - overload protection of generator and prime mover - real power relay - timer controlled tripping	**Overload/reverse power relay:** - combined overload and reverse power protection - protection against ”motoring” - timer controlled tripping	**Reverse power relay:** - ”motoring” protection of generator and prime mover - timer controlled tripping
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√	√	√
Meas. voltage (U_n): 57.7...690V AC	√	√	√
Meas. current (I_n): 0.4...5.0A	√	√	√
Frequency range: 40..45...65..70Hz	√	√	√
Outputs:	1 maximum relay output Settings: 25...125% of P nom Delay: 0.4...20 s	1 max. + 1 min. relay output Settings: 25...125%,-0...-25% of P nom Delay: 0.4...20 s	1 minimum relay output Settings:-0...-25% of P nom Delay: 0.4...20 s
Measuring system:	2W3, 3 phase 3 wire unbal. load 3W3, 3 phase 3 wire unbal. load 3W4, 3 phase 4 wire unbal. load	2W3, 3 phase 3 wire unbal. load 3W3, 3 phase 3 wire unbal. load 3W4, 3 phase 4 wire unbal. load	1W, single phase 1W3, 3 phase 3 wire bal. load 1W4, 3 phase 4 wire bal. load
Approved by classification societies:	√	√	√

	ANSI code 32	ANSI code 32	
			
	RMQ-111D	**RMQ-121D**	
Main functions:	**Loss of excitation relay:** - protection of generators against loss of excitation - timer controlled tripping	**Overexcitation relay:** - protection of generator against over-excitation (over var) - timer controlled tripping	
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√	√	
Meas. voltage (U_n): 57.7...690V AC	√	√	
Meas. current (I_n): 0.4...5.0A	√	√	
Frequency range: 40..45...65..70Hz	√	√	
Outputs:	1 maximum relay output Settings: -25...-25% of Q nom Delay: 0.4...20 s	1 maximum relay output Settings: 25...125% of Q nom Delay: 0.4...20 s	
Measuring system:	1var3, 3 phase 3 wire bal. load 1var4, 3 phase 4 wire bal. load	1var3, 3 phase 3 wire bal. load 1var4, 3 phase 4 wire bal. load	
Approved by classification societies:	√	√	

	ANSI code 81	ANSI code 78	ANSI code 78
			
	RMF-112D	**LMR-111D**	**LMR-122D**
Main functions:	**Frequency relay:** - combined underfrequency/overfrequency protection - timer controlled tripping	**Loss of mains relay:** - detection of vector shift - generator disconnection on mains failure	**Loss of mains relay:** - detection of vector shift - detection of ROCOF (df/dt)
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√	√	√
Meas. voltage (U_n): 57.7...690V AC	√	√	√
Meas. current (I_n): 0.4...5.0A	-	-	-
Frequency range: 40..45...65..70Hz	√	√	√
Outputs:	1 min. and 1 max. relay output Settings: ±10% of f nom, ±20% of f nom at f nom = 55Hz Delay: 0...10 s Nom. frequency: 50Hz, 55Hz, 60Hz	2 relay outputs Settings: 2...20 electr. deg. Delay: 0.5...5 s	2 relay outputs Settings: 2...20 electr. deg. / 0.3…5 Hz/s Delay: 0.5...5 s
Measuring system:	2 phase, single phase	2 phase, single phase	2 phase, single phase
Approved by classification societies:	√	√	√

	ANSI code 27, 59, 78, 81	
		
	G59	
Main functions:	**Protection relay package:** - combined vector shift and ROCOF - protection of over-/underfrequency - 3 phase protection of over-/undervoltage	
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√	
Meas. voltage (U_n): 57.7...690V AC	√	
Meas. current (I_n): 0.4...5.0A	-	
Frequency range: 40..45...65..70Hz	√	
Outputs:	4 relay outputs, setting of set point: 2...20 electr. deg. / 0.3…5 Hz/s / 90…100% of f_n / 100…110% of f_n / 80…100% of U_n / 100…120% of U_n Hysteresis: 1…10% of U_n	
Measuring system:	2 phase, single phase: Vector shift, ROCOF, frequency, 3 phase 3 wire, U, 3 phase 4 wire: Voltage	
Approved by classification societies:	-	

	ANSI code 25	ANSI code 25	
			
	FAS-113DG	**FAS-115DG**	
Main functions:	**Synchroniser:** - synchronisation of generator to busbar - circuit breaker time compensation	**Synchroniser:** - synchronisation of generator to busbar - voltage matching - circuit breaker time compensation	
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√	√	
Meas. voltage (U_n): 57.7...690V AC	√	√	
Meas. current (I_n): 0.4...5.0A	-	-	
Frequency range: 40..45...65..70Hz	√	√	
Outputs:	Synch. pulse output: 1 relay output Freq. control outputs: 2 relay outputs	Synch. pulse output: 1 relay output Freq. control outputs: 2 relay outputs Voltage control: 2 relay outputs	
Measuring system:	2 phase, single phase	2 phase, single phase	
Approved by classification societies:	√	√	

	ANSI code 25	ANSI code 18	
			
	HAS-111DG	**EPN-110DN**	
Main functions:	**Paralleling relay:** - synchronisation of generator to busbar - setting of phase angle - setting of maximum frequency and voltage difference	**Electronic potentiometer:** - control of electronic governor - setting of integrating time - adjustment of output signal	
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√	√	
Meas. voltage (U_n): 57.7...690V AC	√	-	
Meas. current (I_n): 0.4...5.0A	-	-	
Frequency range: 40..45...65..70Hz	√	-	
Outputs:	Synch. pulse output: 1 relay output	1 analogue output Settings: 0…±1V/0…±5V	
Measuring system:	2 phase, single phase	-	
Approved by classification societies:	√	√	

	ANSI code 90	ANSI code 90	ANSI code 90
			
	LSU-112DG	**LSU-113DG**	**LSU-114DG**
Main functions:	**Load sharing unit:** - built-in power and freq. transducer - constant power or isochronous mode	**Load sharing unit:** - reverse power protection and low power detection - built-in power and freq. transducer - constant power or isochr. mode	**Load sharing unit:** - automatic start/stop outputs - built-in power and freq. transducer - constant power or isochronous mode
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√	√	√
Meas. voltage (U_n): 57.7...690V AC	√	√	√
Meas. current (I_n): 0.4...5.0A	√	√	√
Frequency range: 40..45...65..70Hz	√	√	√
Outputs:	Speed control: 2 relay outputs	Speed control: 2 relay outputs Reverse power protection: 1 relay output, fixed settings: -P> 5% / 5 s, -P> 5% / 10 s, -P> 10% / 5 s or -P> 10% / 10 s Low power detect.: 1 relay output, fixed setting: P<5%	Speed control: 2 relay outputs Start/stop: 2 relay outputs, fixed settings: P>80%, P<20%
Measuring system:	1W3, 3 phase 3 wire bal. load Single phase	1W3, 3 phase 3 wire bal. load Single phase	1W3, 3 phase 3 wire bal. load Single phase
Approved by classi-fication societies:	√	√	√

	ANSI code 90		
			
	LSU-122DG		
Main functions:	**var load sharing unit:** - built-in reactive power transducer - control of AVR - input for external voltage transducer		
Aux. voltage (U_n): 57.7...690V AC 24-48-110-220V DC	√		
Meas. voltage (U_n): 57.7...690V AC	√		
Meas. current (I_n): 0.4...5.0A	√		
Frequency range: 40..45...65..70Hz	√		
Outputs:	Voltage control: 2 relay outputs		
Measuring system:	1var3, 3 phase 3 wire bal. load Single phase		
Approved by classi-fication societies:	√		