MFR MATRIX

	ANSI	MFR 1	MFR 11/MP	MFR 11/G59	MFR 12/CP	MFR 13/GP	MFR 15/SYN	MFR 1L	MFR 2/PSV	MFR 3/PSV	ASG 4+	ASG 410+/Yb	ASG 421+/PSV	ESDR 4T	IFR 1	TÜG 4
Overview of Functions	11	opt	yes	yes	yes	yes	yes		yes	yes	yes	yes	yes	yes	yes	yes
Protective Functions																
Overvoltage mains	59	opt	yes	yes					yes	yes	opt		yes			
Overvoltage generator		opt				yes	yes		yes	yes	opt		yes			
Undervoltage mains	27	opt	yes	yes					yes	yes	opt		yes			
Undervoltage generator		opt				yes	yes		yes	yes	opt		yes			
Overfrequency mains	81O	opt	yes	yes					yes	yes	opt		yes			
Overfrequency generator		opt				yes	yes		yes	yes	opt		yes			
Underfrequency mains	81U	opt	yes	yes					yes	yes	opt		yes			
Underfrequency generator		opt				yes	yes		yes	yes	opt		yes			
Phase shift/vector shift mains	78	opt		yes					yes	yes	opt		yes			
Voltage asymmetry	47	opt	yes	yes		yes	yes		yes							
df/dt	81RL	opt		yes					opt	opt						
Reverse power	32R	opt				yes	yes		yes	yes	opt		yes			
Reduced power	32F/37	opt				yes	yes		yes	yes	opt		yes			
Overload	32	opt				yes	yes		yes	yes	opt		yes			
Load imbalance	46	opt				yes	yes		opt	opt						
Loss of excitation	40Q	opt				yes	yes		opt	opt						
cos phi	55	opt				yes	yes		opt	opt						
Independent overcurrent time protection	50	opt			yes	yes	yes		yes	yes					yes	
Overcurrent-time relay	50	opt			yes	yes	yes		yes	yes					yes	
Overcurrent-time relay with thermal replica	50/51														opt	
Voltage dependent overcurrent-time relay	51V	opt														
Direction dependent overcurrent-time relay	50/67	opt														
Earth-fault current relay	50N	opt			yes											
Direction dependent earth-fault current relay	50N/67N	opt														
Earth-fault voltage relay	59N	opt														
Overspeed	12								opt	opt						
Rotor earth-fault relay	64R							yes								
Temperature protection	49								2	7						yes
Storage temperature	38								2	7						yes
Storage vibration (analog input)	39								2	7						opt
Current differential protection	87G/GT/M													yes		
Controller																
Synchronisation (number of points)	25	1					1		2	2	1/2	1	2			
Controller: voltage	90	opt					yes		yes	yes	yes	yes	yes			
Controller: frequency	90	opt					yes		yes	yes	yes	yes	yes			
Controller: active power	90	opt					yes		yes	yes	opt		yes			
Controller: mains interchange power	90	opt					yes			yes						
Controller: cos phi	90	opt					yes		yes	yes	opt					
Controller: load sharing	90	opt					yes		yes	yes	opt					
Controller: VAr sharing	90	opt							yes	yes	opt					
Output relay (standard)		3	3	3	3	3	3	5	4	7			4	4	4	4
Output relay (additional, option)		5								5						6
Analog output (0/4..20 mA), max.		6					3		2/4	2	2					
Analog output (0..10 V DC), max.		8									2					
Automatic reclosing relay	79								yes	yes						
Alarm relay	74	opt	yes	yes	yes	yes	yes	yes	yes	yes	opt		yes	yes	yes	yes
Event recorder										opt						
Remote visualisation via CAN bus		yes							opt	opt	opt			opt	opt	opt
Remote control via CAN bus		opt							opt	opt	opt			opt	opt	opt
Parameterisation via RS232 interface		yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Parameterisation via CAN bus		opt							opt	opt	opt			opt	opt	opt
Classification according to GL						yes										