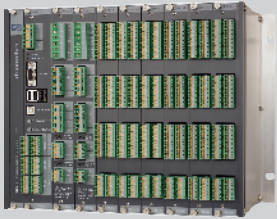






	Delomatic Energy Control System, DM-4 REC-1 		
Main function:	<p>The DM4-REC (Renewable Energy Control system) is designed as a highly flexible, modular process controller covering the special demands of renewable energy plants regarding reliability, robustness, flexibility and remote access to functionality.</p> <p>Suitable for both wind power and hydropower applications.</p>		

	Thyristor Control Module, TCM-2 		
Main function:	Minimisation of grid impact at cut-in and cut-out.		
Aux. supply:	18-36V DC or 19.2-30V AC		
Operating temperature:	-25 to +70°C		
Protection class:	IP20		
Mounting:	Vertical or horizontal		
Thyristor ignition pulses:	500mA current limited, 100kHz, di/dt 1 A/us, Gate cathode voltage 0-5V		
Grid:	110V AC to 690V AC (phase-to-phase) 40-70Hz		
Digital inputs:	9-36V DC		
RPM input:	9-36V DC		
Analogue input:	0-10V, 10kOhm		
Current measuring input:	-/1 or -/5Arms AC		
Current overload:	4 * In continuously 10 * In for 10 s		
Digital outputs:	9-36V DC		

	Generator Protection Unit, GPU-2 Hydro	Generator Protection Unit, GPU-2	Generator Paralleling Controller, GPC-2
			
Aux.: 8-36V DC	✓	✓	✓
Meas. voltage: 100-690V	✓	✓	✓
Current transformer: -1A or -5A	✓	✓	✓
Frequency: 30-70Hz	✓	✓	✓
Loss of mains protection package	A	A	A
df / dt	A	A	A
Vector jump	A	A	A
Busbar and generator protection package	B1	B1	B1
Generator add-on protection package	C1	C1	C1
Zero + negative sequence	C2	C2	C2
Voltage control	D2	D2	D1
Var / cos phi control	-	-	D1
Analogue controller output	-	-	E1
Analogue transducer output	F	F	F
Combination outputs	-	-	EF
Start / stop relay output to next generator	-	G1	✓
Power management	-	-	-
AMF logic	-	-	-
Synchronising	G2	G2	✓
Load sharing	-	-	✓
Engine communication	-	H4/H5/H6	H4/H5/H6
Serial communication	H1/H2/H3	H1/H2/H3	H1/H2/H3
Remote mountable display	✓	✓	✓
Display / PC cables	J	J	J
IP54 protection of display	L	L	L
Available without display	✓	✓	✓
Configurable ext. cards	M	M	M
Engine protection	-	M1/M2	M1/M2
Approved by classification societies	✓	✓	-
BASE / DIN rail mounting	✓	✓	✓
Additional Operator Panel	-	-	-

Generator Protection Unit, GPU-3 Hydro



Aux.: 8-36V DC	✓		
Meas. voltage: 100-690V	✓		
Current transformer: -1A or -5A	✓		
Frequency: 30-70Hz	✓		
Remote mountable display	✓		
Approved by classification societies	✓		
BASE / DIN rail mounting	✓		
Start / stop relay output to next generator	✓		
Busbar and generator protection package	✓		
M-logic (micro PLC)	✓		
Synchronising	Option		
IP 54 protection of display	Option		
Loss of mains protection package	Option		
Additional displays (DU-2)	Option		
Voltage control	Option		
Generator add-on protection package	Option		
Analogue transducer output	Option		
Engine communication	Option		
Serial communication	Option		
Configurable ext. cards	Option		
Engine protection	Option		
Analogue controller output	Option		
Combination outputs	Option		
Additional Operator Panel (AOP-1/AOP-2)	Option		
TCP/IP modbus	Option		
Class 0.5 measurement	Option		