








	Multi Differential Relay, MDR-2	Generator Protection Unit, GPU-2	Paralleling and Protection Unit, PPU-2
			
Main function	Multi Differential Relay for protection against short circuits and currents	Engine and generator control and protection unit for single operation	Engine and generator control and protection unit for single and parallel operation
Auxiliary voltage	8-36V DC	8-36V DC	8-36V DC
Measuring voltage	–	100-690 V	100-690 V
Current transformer	-/1 A or -/5 A	-/1 A or -/5 A	-/1 A or -/5 A
Frequency	30-70 Hz	30-70 Hz	30-70 Hz
Remote mountable display	●	●	●
Approved by classification societies	●	●	●
BASE/DIN rail mounting	●	●	●
Start/stop relay output to next generator	–	○	●
Synchronising	–	○	●
Differential relay	●	–	–
Load sharing	–	–	●
Display/PC cables	○	○	○
IP54 protection of display	○	○	○
Loss of mains protection package	–	○	○
df/dt	–	○	○
Vector jump	–	○	○
Busbar and generator protection package	–	○	○
Generator add-on protection package	–	○	○
Zero + negative sequence	–	○	○
Voltage control	–	○	○
Analogue transducer output	–	○	○
Engine communication	–	○	○
Serial communication	–	○	○
Configurable ext. cards	–	○	○
Engine protection	–	○	○
VAR/cos phi control	–	–	○
Analogue controller output	–	–	○
Combination outputs	–	–	○



● = standard ○ = optional – = not possible

	Generator Protection Unit, GPU-3/GPU-3 Gas/ GPU-3 Hydro	Paralleling and Protection Unit, PPU-3	
			
Main function	Engine and generator control and protection unit for single operation	Engine and generator control and protection unit for single and parallel operation	
Auxiliary voltage	8-36V DC	8-36V DC	
Measuring voltage	100-690 V	100-690 V	
Current transformer	-/1 A or -/5 A	-/1 A or -/5 A	
Frequency	30-70 Hz	30-70 Hz	
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	○	●	
Load sharing	–	●	
IP54 protection of display	○	○	
Loss of mains protection package	○	○	
Additional displays (DU-2)	○	○	
Voltage control	○	○	
Generator add-on protection package	○	○	
Analogue transducer output	○	○	
Engine communication	○	○	
Serial communication	○	○	
Configurable ext. cards	○	○	
Engine protection	○	○	
Analogue controller output	○	○	
Combination outputs	○	○	
Additional Operator Panel (AOP-1/AOP-2)	○	○	
TCP/IP Modbus	○	○	
Class 0.5 measurement	○	○	
VAr/cos phi control	–	○	


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	PPU Power Management Unit, PPM-2 	Protection Power Management, PPM-3 	
Main function	Engine and generator control, protection and power management unit for parallel operation	Engine and generator control, protection and power management unit for parallel operation	
Auxiliary voltage	8-36V DC	8-36V DC	
Measuring voltage	100-690 V	100-690 V	
Current transformer	-/1 A or -/5 A	-/1 A or -/5 A	
Frequency	30-70 Hz	30-70 Hz	
Busbar and generator protection package	●	●	
Generator add-on protection package	●	●	
Power management	●	●	
Synchronising	●	●	
Load sharing	●	●	
Remote mountable display	●	●	
Engine protection	●	●	
Approved by classification societies	●	●	
BASE mounting	●	●	
Additional displays	○	○	
Additional Operator Panel (AOP-1)	–	○	
Additional Operator Panel (AOP-2)	●	○	
Available without display	–	○	
Voltage control	○	○	
VAR/cos phi control	○	○	
Analogue controller output	○	○	
Analogue transducer output	○	○	
Combination outputs	○	○	
Engine communication	–	○	
Serial communication	○	○	
Display/PC cables	○	○	
IP54 protection of display	○	○	
Configurable ext. cards	○	○	
TCP/IP	○	○	
Class 0.5 measurement	–	○	

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	Engine Controller, Marine EC-1M  <i>Not recommended for new designs</i>	Generator Controller, Marine GC-1M  <i>Not recommended for new designs</i>	
Main function	Engine control and protection	Engine and generator control and protection	
Auxiliary voltage	8-36V DC	8-36V DC	
Measuring voltage	50-480 V	50-480 V	
Current transformer	–	-/1 A or -/5 A	
Frequency	30-70 Hz	30-70 Hz	
Engine start/stop relay output	●	●	
Engine protection	●	●	
Approved by classification societies	●	●	
Generator protection package	○	●	
Engine communication	○	○	
Display/PC cables	○	○	
IP54 protection of display	○	○	
Serial communication	○	–	
AMF logic	–	○	

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	Genset Controller, GC-1F 	Automatic Genset Controller, AGC-3 	Automatic Genset Controller, AGC-4 
Main function	Engine and generator control and protection unit for single operation	Island mode, AMF, fixed power, peak shaving, mains power export, load takeover, remote maintenance	Island mode, AMF, fixed power, peak shaving, mains power export, load takeover, remote maintenance
Auxiliary voltage	6-36V DC	8-36V DC	8-36V DC
Measuring voltage	50-480 V	100-690 V	100-690 V
Current transformer	-/1 A or -/5 A	-/1 A or -/5 A	-/1 A or -/5 A
Frequency	30-70 Hz	30-70 Hz	30-70 Hz
Busbar and generator protection package	● (Generator protection only)	●	●
Engine protection	●	●	●
AMF logic	○	●	●
Remote mountable display	–	●	●
Start/stop relay output to next generator	–	●	●
Synchronising	–	●	●
BASE/DIN rail mounting	–	●	●
Generator add-on protection package	–	○	●
IP protection of display	○ (IP65)	○ (IP54)	○ (IP54)
Engine communication	○	○	○
Serial communication	○	○	○
Additional Operator Panel/additional display	○	○	○
Display/PC cables	○	○	○
Loss of mains protection package	–	○	○
df/dt	–	○	○
Vector jump	–	○	○
Positive sequence	–	○	○
Directional overcurrent	–	○	○
Zero + negative sequence	–	○	○
Voltage control	–	○	○
VAR/cos phi control	–	○	○
Analogue controller output	–	○	○
Analogue transducer output	–	○	○
Combination outputs	–	○	○
Power management	–	○	○
Load sharing	–	○	○
Configurable ext. cards	–	○	○
TCP/IP	–	○	○
Alarm log printer	–	○	○
Class 0.5 measurement	–	○	–
Approvals	UL/cUL	UL/cUL and TÜV	UL/cUL and TÜV

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	AGC 212	AGC 213	AGC 232	AGC 233	AGC 242	AGC 244	AGC 245	AGC 246
Main function	Island mode	Island mode, AMF	Island mode, load sharing	Island mode, AMF, fixed power, peak shaving, load takeover	Island mode, AMF, fixed power, peak shaving, load takeover, load sharing	Island mode, AMF, fixed power, peak shaving, load takeover, load sharing	Island mode, AMF, fixed power, peak shaving, load takeover, load sharing	Island mode, AMF, fixed power, peak shaving, load takeover, load sharing
Auxiliary voltage	6-36V DC	6-36V DC	6-36V DC	6-36V DC	6-36V DC	6-36V DC	6-36V DC	6-36V DC
Measuring voltage	50-690V AC	50-690V AC	50-690V AC	50-690V AC	50-690V AC	50-690V AC	50-690V AC	50-690V AC
Current transformer	-1 A or -5 A	-1 A or -5 A	-1 A or -5 A	-1 A or -5 A	-1 A or -5 A	-1 A or -5 A	-1 A or -5 A	-1 A or -5 A
Frequency	30-70 Hz	30-70 Hz	30-70 Hz	30-70 Hz	30-70 Hz	30-70 Hz	30-70 Hz	30-70 Hz
Engine protection	●	●	●	●	●	●	●	●
Busbar and generator protection package	●	●	●	●	●	●	●	●
Synchronising	●	●	●	●	●	●	●	●
Engine communication	●	●	●	●	●	●	●	●
Voltage control	●	●	●	●	●	●	●	●
VAr/cos phi control	●	●	●	●	●	●	●	●
User-programmable logic (M-Logic)	●	●	●	●	●	●	●	●
Configurable inputs/ outputs	●	●	●	●	●	●	●	●
High speed USB connection	●	●	●	●	●	●	●	●
AMF logic	-	●	-	●	●	●	●	●
Multi master power management	-	-	-	-	●	●	●	●
Redundant CANbus for power management	-	-	-	-	●	●	●	●
Start/stop relay output to next generator	-	-	●	-	●	-	-	-
Load sharing	-	-	●	-	●	-	-	-
IP65 protection	○	○	○	○	○	○	○	○
RS485	○	○	○	○	○	○	○	○
Additional Operator Panel	○	○	○	○	○	○	○	○
Loss of mains protection package	○	○	○	○	○	○	○	○
df/dt	○	○	○	○	○	○	○	○
Vector jump	○	○	○	○	○	○	○	○
Positive sequence	○	○	○	○	○	○	○	○
Directional overcurrent	○	○	○	○	○	○	○	○
Generator add-on protection package	○	○	○	○	○	○	○	○
Zero + negative sequence	○	○	○	○	○	○	○	○
Analogue controller output	○	○	○	○	○	○	○	○
TCP Modbus	○	○	○	○	○	○	○	○
Remote mountable display	-	-	-	-	-	-	-	-
Approvals	CE, UL/cUL and TÜV	CE, UL/cUL and TÜV	CE, UL/cUL and TÜV	CE, UL/cUL and TÜV	CE, UL/cUL and TÜV	CE, UL/cUL and TÜV	CE, UL/cUL and TÜV	CE, UL/cUL and TÜV


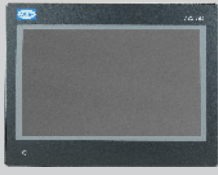
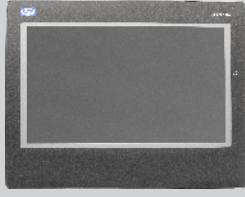
● = standard ○ = optional - = not possible

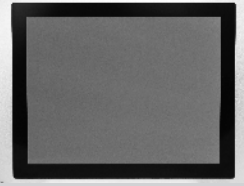
	Generator Paralleling Controller, GPC-3/GPC-3 Gas/ GPC-3 Hydro		
			
Main function	Engine and generator control and protection for single and parallel operation		
Auxiliary voltage	8-36V DC		
Measuring voltage	100-690 V		
Current transformer	-/1 A or -/5 A		
Frequency	30-70 Hz		
Remote mountable display	●		
BASE/DIN rail mounting	●		
M-Logic (Micro PLC)	●		
Synchronising	●		
df/dt	○		
Vector jump	○		
Busbar and generator protection package	●		
Load sharing	●		
Start/stop relay output to next generator	●		
Over-/undervoltage protection	–		
Over-/underfrequency protection	–		
IP54 protection of display	○		
Positive sequence	○		
Directional overcurrent	○		
TCP/IP	○		
Zero + negative sequence	○		
Additional display	○		
Voltage control/VAr/Pf	○		
Analogue transducer	○		
Engine communication	○		
Serial communication	○		
Configurable ext. cards	○		
Engine protection	○		
Analogue controller output	○		
Additional operator panel	○		
Class 0.5 measurement	○		
Approvals	UL/cUL		


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	Basic Genset Controller, BGC-2	Generator Paralleling Controller, GPC-2	Automatic Genset Controller, AGC-2
			
Main function	Island mode, AMF, fixed power, peak shaving, load takeover, load sharing	Engine and generator control and protection unit for single and parallel operation	Island mode, AMF, fixed power, peak shaving, mains power export, load takeover
Auxiliary voltage	8-36V DC	8-36V DC	8-36V DC
Measuring voltage	100/110 V + 380/480 V	100-690 V	100-690 V
Current transformer	-/1 A or -/5 A	-/1 A or -/5 A	-/1 A or -/5 A
Frequency	30-70 Hz	30-70 Hz	30-70 Hz
Start/stop relay output to next generator	○	●	●
Synchronising	○	●	●
AMF logic	●	–	●
Remote mountable display	–	●	●
BASE/DIN rail mounting	–	●	●
Load sharing	○	●	○
Engine protection	●	○	○
Loss of mains protection package	○	○	○
df/dt	○	○	○
Vector jump	○	○	○
Busbar and generator protection package	○	○	○
Generator add-on protection package	○	○	○
Voltage control	○	○	○
VAr/cos phi control	○	○	○
Analogue controller output	○	○	○
Analogue transducer output	○	○	○
Engine communication	○	○	○
Serial communication	○	○	○
Display/PC cables	○	○	○
IP54 protection of display	○	○	○
Configurable ext. cards	○	○	○
Zero + negative sequence	–	○	○
Combination outputs	–	○	○
Additional Operator Panel	–	–	○
Positive sequence	–	–	○
Power management	–	–	○

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	Advanced Graphical Interface, AGI 104-2	Advanced Graphical Interface, AGI 107-2	Advanced Graphical Interface, AGI 110-2
			
Main function	LCD graphical touch control panel	LCD graphical touch control panel	LCD graphical touch control panel
Touch display	4.3" TFT 4 wires, analogue resistive	7" TFT 4 wires, analogue resistive	10" TFT 4 wires, analogue resistive
Operating System	HMI RTOS, DEIF Screen Designer 1.2.x/2.0.x, 2D engine-supported	HMI RTOS, DEIF Screen Designer 1.2.x/2.0.x, 2D engine-supported	HMI RTOS, DEIF Screen Designer 1.2.x/2.0.x, 2D engine-supported
Auxiliary voltage	24V DC \pm 17%	24V DC \pm 17%	24V DC \pm 17%
Power consumption	13 W	15 W	25 W
Dimension (W x H x D)	130 x 106.2 x 37 mm	188 x 143.3 x 30 mm	269.8 x 212 x 38 mm
Cut-out dimension (W x H)	118.5 x 92.5 mm	175 x 132.5 mm	258.5 x 200.8 mm
Build height	6 mm	6 mm	6 mm
Display type	WQVGA TFT LCD	WVGA TFT LCD	WSVGA TFT LCD
Resolution	480 x 272 pixels	800 x 480 pixels	1024 x 600 pixels
Colours	64K colour	64K colour	64K colour
Backlight	LED	LED	LED
Dimmable	Yes	Yes	Yes
Front mount	Yes	Yes	Yes
Flash memory	8 MB	8 MB	8 MB
SDRAM	32 MB	64 MB	64 MB
Nand Flash	128 MB	128 MB	128 MB
COM 1	RS-232/422/485 (DB9 female)	RS-232/422/485 (DB9 female)	RS-232/422/485 (DB9 female)
COM 2	RS-422/485 (5-Pins Plug Connector)	RS-422/485 (5-Pins Plug Connector)	RS-422/485 (5-Pins Plug Connector)
COM 3	RS232 in COM1 pin 7, 8	RS232 in COM1 pin 7, 8	RS232 in COM1 pin 7, 8
Ethernet (RJ45)	10/100-BaseT	10/100-BaseT	10/100-BaseT
USB client	Yes	Yes	Yes
USB host	Yes, Host x1	Yes, Host x1	Yes, Host x1
Micro-SD slot	Yes	Yes	Yes
Operation temp.	0 to 50°C	0 to 50°C	0 to 50°C
Storage temp.	-20 to 60°C	-20 to 60°C	-20 to 60°C
Humidity	10 ~ 95% RH @ 40° C, non-condensing	10 ~ 95% RH @ 40° C, non-condensing	10 ~ 95% RH @ 40° C, non-condensing
IP front	NEMA4, IP66	NEMA4, IP66	NEMA4, IP66
IP rear	IP20	IP20	IP20
Approvals	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC

	<p>Advanced Graphical Interface, AGI 115-2</p> 		
Main function	LCD graphical touch control panel		
Touch display	15" TFT 5 wires, analogue resistive		
Operating System	HMI RTOS, DEIF Screen Designer 1.2.x/2.0.x, 2D engine-supported		
Auxiliary voltage	24V DC ±17%		
Power consumption	25 W		
Dimension (W × H × D)	399.1 × 297.6 × 62.6 mm		
Cut-out dimension (W × H)	384.5 × 283.0 mm		
Build height	6 mm		
Display type	XGA TFT LCD		
Resolution	1024 × 768 pixels		
Colours	64K colour		
Backlight	LED		
Dimmable	Yes		
Front mount	Yes		
Flash memory	8 MB		
SDRAM	64 MB		
Nand Flash	128 MB		
COM 1	RS-232/422/485 (DB9 female)		
COM 2	RS-422/485 (5-Pins Plug Connector)		
COM 3	RS232 in COM1 pin 7, 8		
Ethernet (RJ45)	10/100-BaseT		
USB client	Yes		
USB host	Yes, Host ×1		
Micro-SD slot	Yes		
Operation temp.	0 to 50°C		
Storage temp.	-20 to 60°C		
Humidity	10 ~ 95% RH @ 40° C, non-condensing		
IP front	NEMA4, IP66		
IP rear	IP20		
Approvals	UL, CE, FCC		

Remote Maintenance Box, RMB			
			
Main function	To have a safe and easy handling of transformer maintenance applications		
Auxiliary voltage	6-36V DC		
Measuring voltage	50-480 V		
Frequency	30-70 Hz		
Max. distance from gen.	300		
Engine start/stop	●		
Static GB sync.	●		
Fuse pulling	●		
Manual power control	●		
Single-phase sync.	●		
Three-phase sync.	●		
Connection kit to DG	○		
5 m cable	○		
25 m cable	○		
50 m cable	○		
Technical training	○		
IP protection	Type test		
Bumps	Type test		
Approvals	Type test		

● = standard ○ = optional - = not possible