

GPU, GPC, PPU, AGC

Specification Of Options

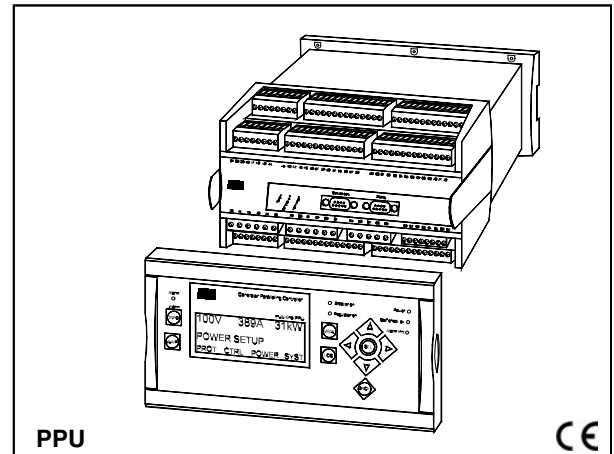
multi-line 2

4921240240K

- **Perfect matching solutions**
- **Pay only for what you need**
- **Same basic unit no matter the application**
- **Upgradeable functionality**
- **Simplified engineering**
- **Self-detectable plug and play modularity**

GPU/GPC/PPU:

This option list relates to software version 1.70.3 and earlier



Application

Standard protection functions for all units:

- 2 x over current protection
- Reverse power protection

Specification of options:

Below the available options for the multi-line 2 GPU, GPC, PPU and AGC gen-set control and protection units are specified.

Please note that not all functions can be chosen for all four products. Please refer to the 'Note' column to see which functions are available for each type.

For the placement of hardware (slot #), please refer to the "Placed in" column and specific drawings of the GPU/GPC/PPU or AGC.

Op-tion	Description	Placed in	Note
A	Loss of mains protection		
A1	- Over- and under voltage (generator and busbar/mains) - Over- and under frequency (generator and busbar/mains) - Vector jump - Df/dt (ROCOF)	Software option	
A2	- Over- and under voltage (generator and busbar/mains) - Over- and under frequency (generator and busbar/mains) - Df/dt (ROCOF)	Software option	
A3	- Over- and under voltage (generator and busbar/mains) - Over- and under frequency (generator and busbar/mains) - Vector jump	Software option	
B	Generator/busbar/mains protection		
B1	- Over- and under voltage (generator and busbar/mains) - Over- and under frequency (generator and busbar/mains)	Software option	
C	Generator add-on protection package		
C1	- Over- and under voltage (generator) - Over- and under frequency (generator) - Overload - Fast over current (<42 ms) - High over current (<200%) - Current unbalance - Voltage asymmetry - Reactive power (import (excitation loss)/export (over excitation))	Software option	GPC: This option is not available
D	Voltage/var/cos φ control		
D1	Selection between: - Constant voltage control (stand-alone) - Constant reactive power control (parallel with mains) - Constant power factor control (parallel with mains) - Reactive load sharing (island paralleling with other generators)	AGC: Software option PPU/GPC: Slot #8	AGC: Relay outputs standard, slot #4. Not with EF2 PPU/GPC: Removed if option E is chosen

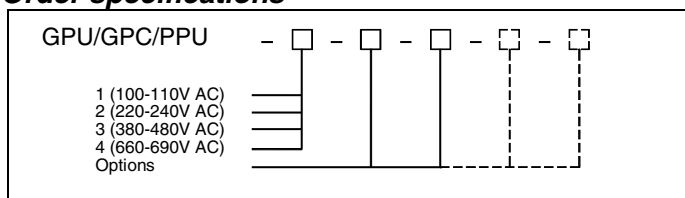
GPU, GPC, PPU, AGC

Op-tion	Description	Placed in	Note
D2	- Constant voltage (stand-alone/synchronisation)	PPU/GPC: Slot #8 GPU: Slot #3	GPU: Only when option G2 is also chosen (same board used)
E	Analogue controller outputs		
E1	- +/-20 mA for speed governor - +/-20 mA for AVR	Slot #4	All: AVR: Only when option D is chosen Not with F2, EF, O GPU: Requires G2 Not with F2
F	Analogue transducer outputs		
F1	- 2 x 0(4)...20 mA transducer outputs	Slot #6	All: Not with M13, M14, M15
F2	- 4 x 0(4)...20 mA transducer outputs	Slot #4 + 6	GPC/PPU/GPU: Not with M13, M14, M15, F1, E1 AGC: This option is not available
EF	Combination outputs		
EF2	- +/-20 mA for speed governor - 1 x 0(4)...20 mA transducer output	Slot #4	All: Not with E1, F2, EF3, EF4 AGC: Not with D1, D2
EF3	- 1 x PWM (Pulse Width Modulated) output f. CAT speed governor - +/-20 mA for speed governor or AVR - 2 x relay outputs for speed governor or AVR	Slot #4	All: Not with E1, F2, EF2, EF4 AVR: Requires D
EF4	- +/-20 mA for speed governor or AVR - 2 x relay outputs for speed governor or AVR	Slot #4	All: Not with E1, F2, EF2, EF3 AVR: Requires D
G	Start/stop/synchronising control relay outputs		
G1	- 2 x relay outputs for start and stop of other generators (programmable)	GPU: Slot #8	GPC/PPU: Standard function AGC: Not available
G2	- Synchronisation with relay speed governor outputs	GPU: Slot #3	GPC/PPU/AGC: Standard function
G3	- Load sharing with analogue lines	Slot #3	GPU: Not available GPC/PPU: Standard function AGC: Can be combined with option M12
G4	- Automatic mains failure and power management, 2 gen-sets	Slot #8	GPC/PPU/GPU: Not available
H	Serial communication		
H1	- Can-open	Slot #2	All: Not with H2, H3, N1
H2	- Mod-bus RTU (RS485)	Slot #2	All: Not with H1, H3
H3	- Profi-bus DP (RS485)	Slot #2	All: Not with H1, H2, N1
H4	- CAT CCM (RS232)	Slot #8	AGC: Only limited engine data can be displayed. All data can be read via H2
J	Cables		
J1	- Display cable with plugs, 3 m. UL94 (V1) approved		
J2	- Display cable with plugs, 6 m. UL94 (V1) approved		
J3	- PC cable for utility software (RS232). UL94 (V1) approved		
K	Designers reference handbook		
K1	- Hard copy (as standard enclosed as a CD-ROM)		
L	Display gasket for IP54		
M	Configurable I/O extension cards		
M1	- 4 x 4...20 mA inputs - 2 x PT100 inputs - 1 x tacho input (magnetic pick-up) - 5 x binary inputs - 3 x relay outputs	Slot #7	AGC: Standard function with engine control Others: Only measurements and alarms, no engine control
M2	- 3 x 4...20 mA inputs - 3 x VDO inputs - 1 x tacho input (magnetic pick-up) - 9 x binary inputs - 3 x relay outputs	Slot #7	AGC: Option Others: Not available

GPU, GPC, PPU, AGC

Op-tion	Description	Placed in	Note
M12	- 13 x binary inputs - 4 x relay outputs	Slot #3	GPC/PPU/GPU: Not available AGC: Can be combined with option G3
M13	- 7 x binary inputs	Slot #6	GPC/PPU/GPU: Not available AGC: Not with M14, M15, F
M14	- 4 x relay outputs	AGC: Slot #6	GPC/PPU/GPU: Not available AGC: Not with M13, M15, F
M15	- 4 x 0(4)...20 mA analogue inputs	Slot #6	GPC/PPU/GPU: Not available All: Not with M13, M14, F
N	Ethernet TCP/IP communication		
N1	- Integrated WebServer with web pages for plant presentation Example: See http://ml2.deif.com		All: Requires H2
O	Water turbine control		
O1	- Water turbine control with water level and jet deflector control	Slot #7	GPC/PPU: Incl. M1 AGC: Not available
Y	Display layout		
Y1	- AGC display for island operation (no mains breaker)		AGC only

Order specifications



PPU / GPC / GPU

(Paralleling and Protection Unit / Generator Paralleling Controller / Generator Protection Unit)

Ethernet

Option N1: WebServer

Slot #4, term. 65-72 Outputs

Option E1: 2 x +/- 20 mA out,
governor + AVR

Option F2: 2 x 0(4)...20 mA out,
transducer

Option EF2: 1 x +/- 20 mA out,
governor
1 x 0(4)...20 mA out,
transducer

Option EF3: 1 x PWM governor out
1 x +/- 20 mA out, AVR
2 x relay out

Option EF4: 1 x +/- 20 mA out, AVR
2 x relay out

Slot #6, term. 90-97 In-/outputs

Option F1/F2: 2 x 0(4)...20 mA
out, transducer

Slot #8, term. 126-133 Communication/outputs

Option D1/D2: AVR relay
outputs
(GPC/PPU
only)

Option G1: Start/stop next
gen. relay
outputs
(GPU only)

Slot #2, term. 29-36 Communication

Option H1: Can-open

Option H2: Mod-bus RTU (RS485)

Option H3: Profi-bus DP (RS485)

Slot #1, term. 1-28 Power supply (std. board)

24 VDC supply, 8W
1 x status output relay
5 x relay outputs
2 x pulse outputs (kWh, kvarh)
5 x binary inputs

Slot #3, term. 37-64 Load sharing (std. in GPC/PPU)

Option D2: Constant voltage,
synchronisation/stand-
alone (GPU only and only
with option G2)

Option G2: Synchronisation
with relay outputs
(GPU only)

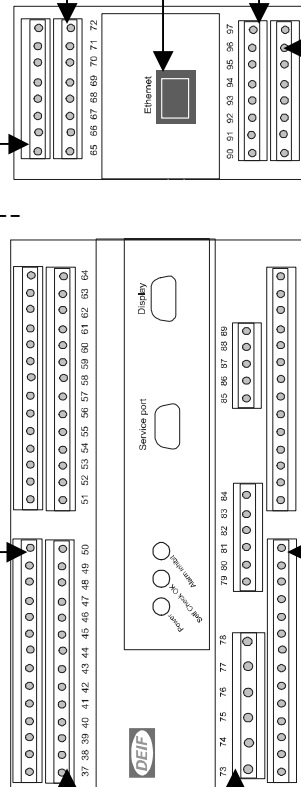
Slot #7, term. 98-125 Engine I/F

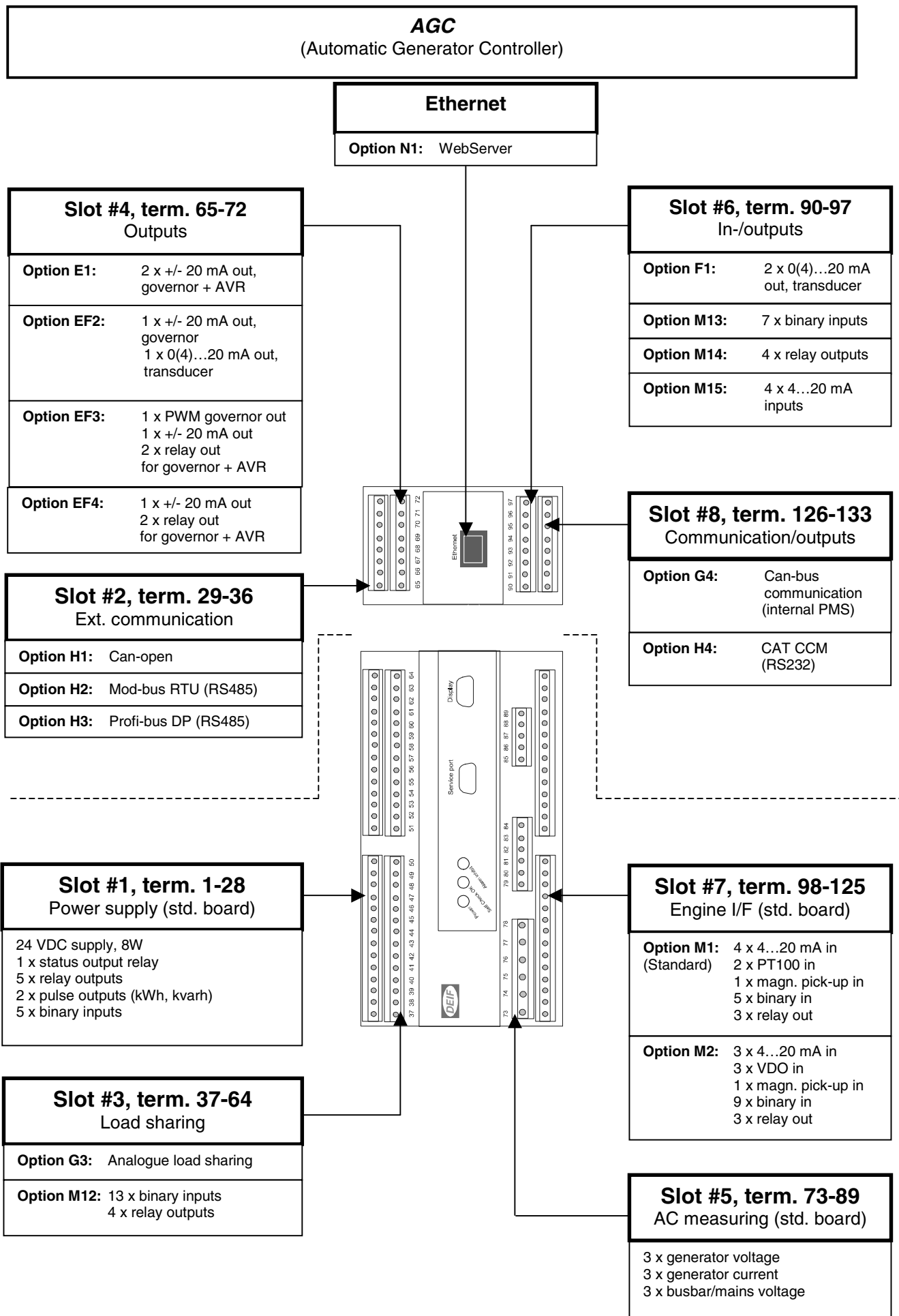
Option M1: 4 x 4...20 mA in
2 x PT100 in
1 x magn. pick-up in
5 x binary in
3 x relay out

Option O1: Water turbine control

Slot #5, term. 73-89 AC measuring (std. board)

3 x generator voltage
3 x generator current
3 x busbar/mains voltage





GPU, GPC, PPU, AGC

Due to our continuous development we reserve the right to supply equipment which may vary from the described.



-power in control

DEIF A/S, Frisenborgvej 33
DK-7800 Skive, Denmark

Tel.: +45 9614 9614, Fax: +45 9614 9615

E-mail: deif@deif.com, URL: www.deif.com

