

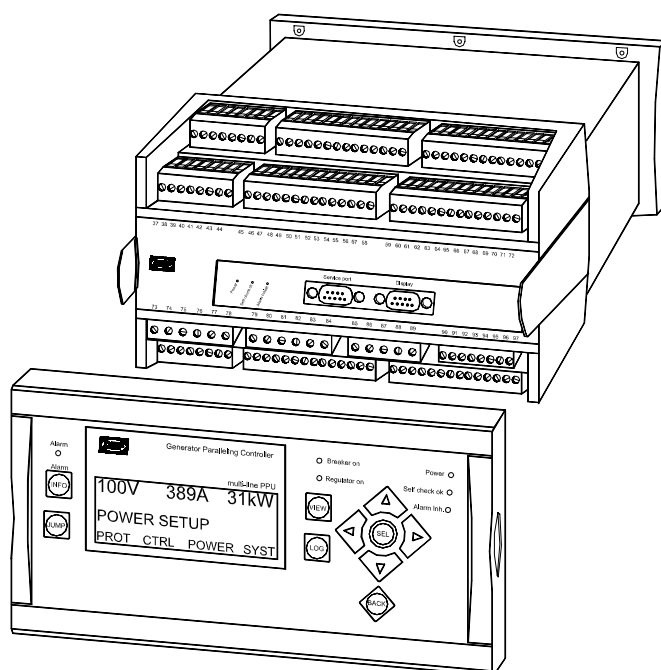
Description of options

Option EF2, Analogue governor and transducer outputs

Multi-line 2 – version 2

4189340270C

SW version 2.4X.X



- Description of option
- Functional description
- Parameter list

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This manual is valid for standard multi-line 2 PPU/GPC units with firmware version 2.00.0 or later.

1. Warnings and legal information

Legal information and responsibility

DEIF takes no responsibility for installation or operation of the generator set. If there is any doubt about how to install or operate the generator set controlled by the unit, the company responsible for the installation or the operation of the set must be contacted.

The units are not to be opened by unauthorised personnel. If opened anyway, the warranty will be lost.

Electrostatic discharge awareness

Sufficient care must be taken to protect the terminals against static discharges during the installation. Once the unit is installed and connected, these precautions are no longer necessary.

Safety issues

Installing the unit implies work with dangerous currents and voltages. Therefore, the installation should only be carried out by authorised personnel who understand the risks involved in working with live electrical equipment.



Be aware of the hazardous live currents and voltages. Do not touch any AC measurement inputs as this could lead to injury or death.

Definitions

Throughout this document a number of notes and warnings will be presented. To ensure that these are noticed, they will be highlighted in order to separate them from the general text.

Notes



The notes provide general information which will be helpful for the reader to bear in mind.

Warning



The warnings indicate a potentially dangerous situation which could result in death, personal injury or damaged equipment, if certain guidelines are not followed.

2. Description of option

EF2 option

This document describes the functionality of the mixed governor and transducer outputs contained in option EF2.



Option EF2 is available for the PPU and the GPC, not for the GPU.

Option EF2 is a hardware option, and therefore a separate PCB is installed in addition to the standard-installed hardware.

Option EF2 covers the following ANSI code:

Function	ANSI no.
1 x 0(4)...20mA outputs	77
1 x +/- 20mA controller output	

Terminal description

Term.	Function	Description
65	Not used	
66	+/-20mA out	Speed governor set point output
67	0	
68	Not used	
69	Not used	
70	0(4)...20mA	Transducer output no. 3.
71	0	
72	Not used	



The speed governor output can be converted to all voltage ranges from 0-1V DC to 0-10V DC by installing an external resistor.

3. Functional description

Governor output

The +/- 20mA output can be converted to any voltage range from 0-1 to 0-10V DC by mounting resistors across the terminals.

Example: A 250 Ω resistor across the terminals will supply a range of +/- 5V DC.



The choice of resistor depends on the specific governor. Please refer to the DEIF documents 'Interfacing DEIF Equipment with Governors and AVRs' and 'General Guidelines for Commissioning' for detailed information.



Place the resistor at the governor end to avoid the signal being disturbed by noise.



The output from the controller unit is an active output, and no external supply can be connected.

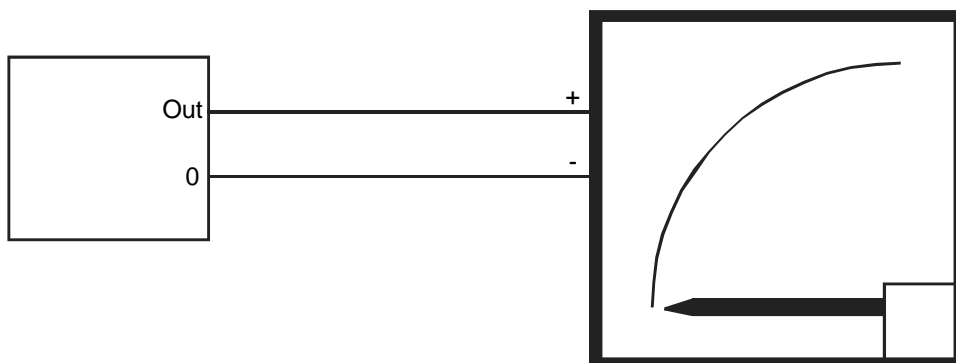
Transducer output

The transducer output is active and galvanically separated.

Wiring example

Transducer output

4-20mA instrument or similarly



The output from the controller unit is an active output, and no external supply can be connected.

Configuration of transducer output

Configuration of the transducer outputs can be done from the PC utility software or from the display.

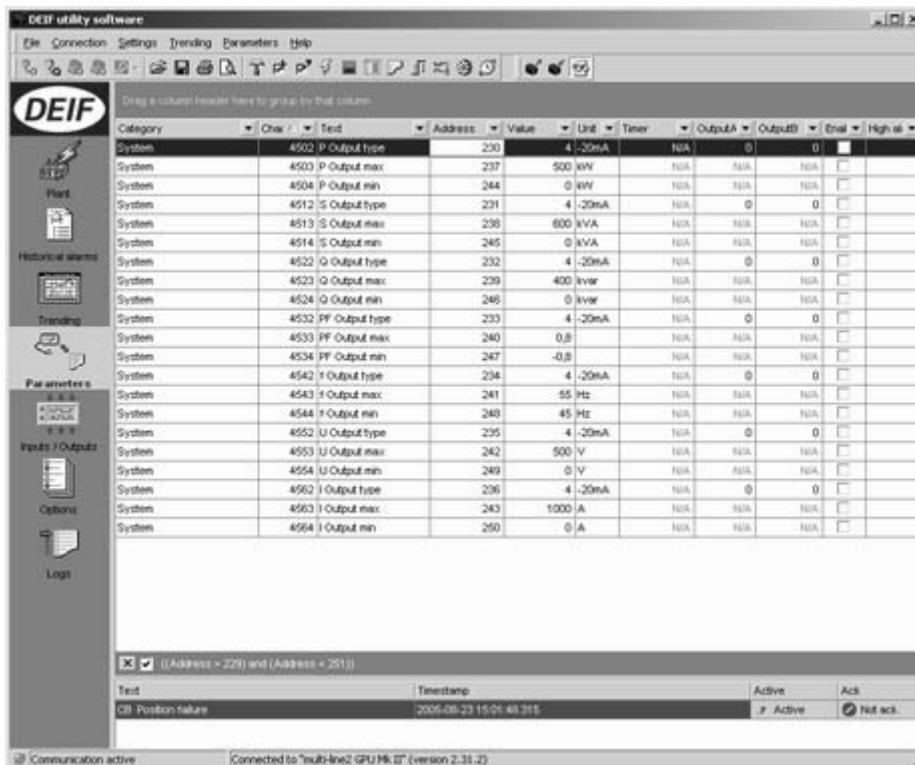
Configuration from the utility software

When the configuration of the transducer output is made from the PC utility software, the configuration is done in four steps.

In this example, the transducer output must relate to the power measurement (kW).

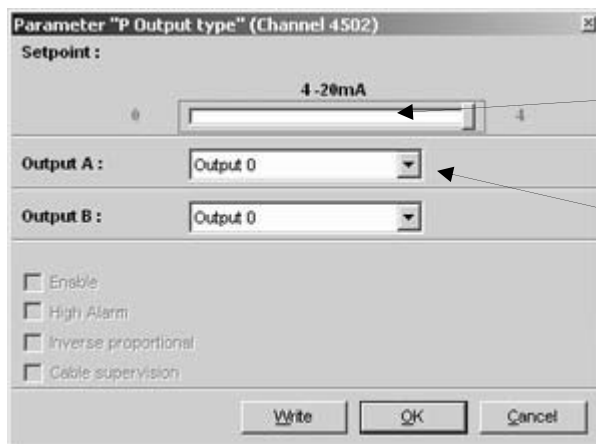
Step 1:

Upload the parameters from the Multi-line 2.



Step 2:

Locate menu 4502 in the list below and double click the marked line. A dialogue box appears and the transducer output can be selected. Write the value to the Multi-line 2.



Select output type 0-20mA or 4-20mA.

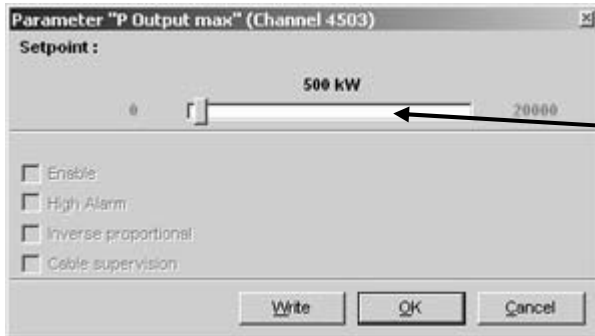
Select output #3 to activate the transducer output.



The transducer output is called output #3 in option EF2.

Step 3:

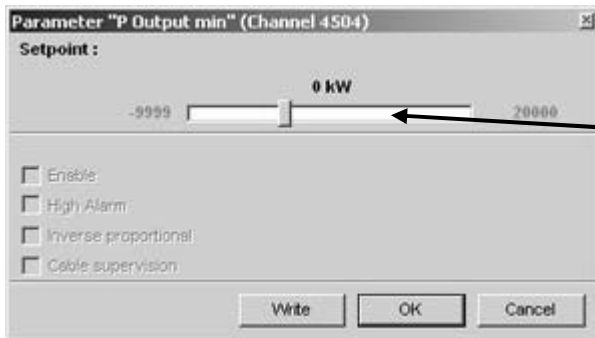
Locate menu 4503 in the parameter list and double click the line. Now, adjust the value that corresponds to 20mA and write the value to the Multi-line 2.



Adjust the value in kW that represents 20mA.

Step 4:

Locate menu 4504 in the parameter list and double click the line. Now, adjust the value that corresponds to 4mA and write the value to the Multi-line 2.



Adjust the value in kW that represents 4mA.

4. Parameter list

The setup of parameters is done via the display or the PC utility software (USW).



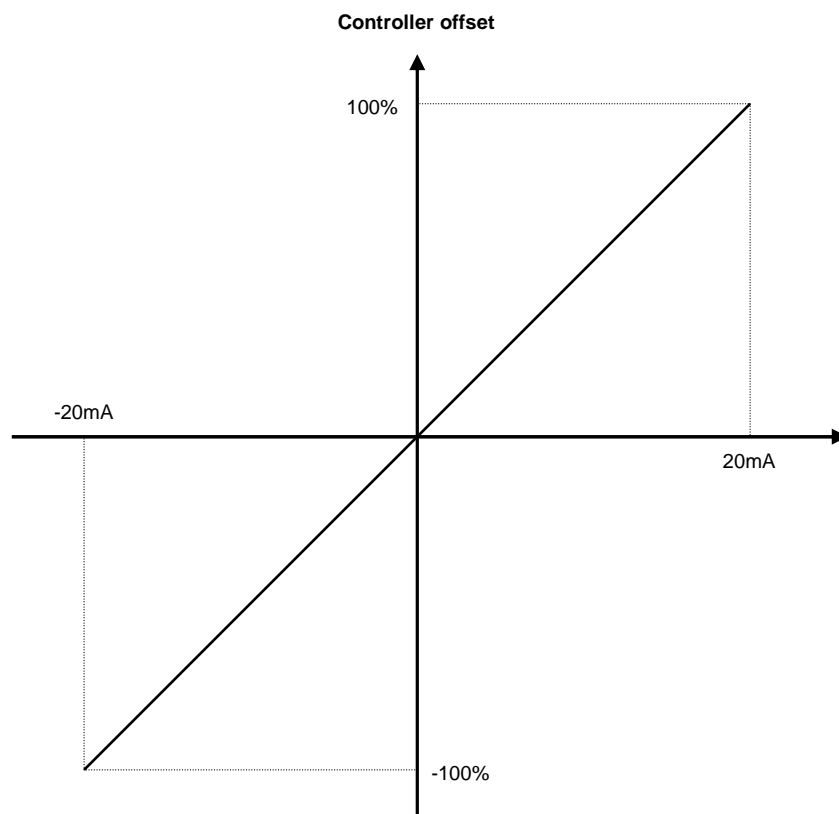
For further information about the structure of the parameter descriptions, please see the Designer's Reference Handbook.

Analogue controller offset

In addition to the controller parameters described in the Designer's Reference Handbook this additional setting can be used. The purpose of this setting is to give the analogue output an offset value when powering up the unit. Furthermore, a binary input can be used to reset the output to the offset value. The offset value must be adjusted, so the gen-set will start up at the correct speed.



Typically the speed adjustment is made on the speed governor itself.



2160 Analogue governor offset

No.	Setting		Min. setting	Max. setting	Factory setting
2161	Ana GOV offset	Offset	-100%	100%	0%



After adjusting the analogue offset values, the controller unit must be reset (power off) in order to use the new adjustment.

Transducer output settings

The setup of parameters is done via the display or the PC Utility Software (USW). In the following, the settings are presented in tables.

The analogue output options each consist of one independent 0(4)...20mA output. The output can be chosen to represent any of the following values.

4500 Power output (P kW)

No.	Setting		Min. setting	Max. setting	Factory setting
4501	Power output	Output A	0	3	0
4502	Power output	Output B	0	3	0
4503	Power output	Type	0-20mA	4-20mA	4-20mA
4504	Power output	Max. value	0 kW	99 MW	500 kW
4505	Power output	Min. value	-99 MW	99 MW	0 kW

4510 Apparent power output (S kVA)

No.	Setting		Min. setting	Max. setting	Factory setting
4511	S output	Output A	0	3	0
4512	S output	Output B	0	3	0
4513	S output	Type	0-20mA	4-20mA	4-20mA
4514	S output	Max. value	0 kVA	99 MVA	600 kVA
4515	S output	Min. value	-99 MVA	99 MVA	0 kVA

4510 Reactive power output (Q kVAr)

No.	Setting		Min. setting	Max. setting	Factory setting
4521	Q output	Output A	0	3	0
4522	Q output	Output B	0	3	0
4523	Q output	Type	0-20mA	4-20mA	4-20mA
4524	Q output	Max. value	0 kVAr	99 MVAr	400 kVAr
4525	Q output	Min. value	-99 MVAr	99 MVAr	0 kVAr

4530 Power factor output (PF)

No.	Setting		Min. setting	Max. setting	Factory setting
4531	PF output	Output A	0	3	0
4532	PF output	Output B	0	3	0
4533	PF output	Type	0-20mA	4-20mA	4-20mA
4534	PF output	Max. value	0.5	1	0.8
4535	PF output	Min. value	-0.5	1	-0.8

4540 Generator frequency output (f_{GEN})

No.	Setting		Min. setting	Max. setting	Factory setting
4541	Freq. output	Output A	0	3	0
4542	Freq. output	Output B	0	3	0
4543	Freq. output	Type	0-20mA	4-20mA	4-20mA
4544	Freq. output	Max. value	0Hz	70Hz	55Hz
4545	Freq. output	Min. value	0Hz	70Hz	45Hz

4550 Generator voltage output (U_{GEN})

No.	Setting		Min. setting	Max. setting	Factory setting
4551	Voltage outp.	Output A	0	3	0
4552	Voltage outp.	Output B	0	3	0
4553	Voltage outp.	Type	0-20mA	4-20mA	4-20mA
4554	Voltage outp.	Max. value	0 V	28000 V	500 V
4555	Voltage outp.	Min. value	0 V	28000 V	0 V



The voltage output represents the L1-L2 voltage.

4560 Generator current output (I_{GEN})

No.	Setting		Min. setting	Max. setting	Factory setting
4561	Current outp.	Output A	0	3	0
4562	Current outp.	Output B	0	3	0
4563	Current outp.	Type	0-20mA	4-20mA	4-20mA
4564	Current outp.	Max. value	0 A	9000 A	1000 A
4565	Current outp.	Min. value	0 A	9000 A	0 A



The current output represents the L1 current.

DEIF A/S reserves the right to change any of the above