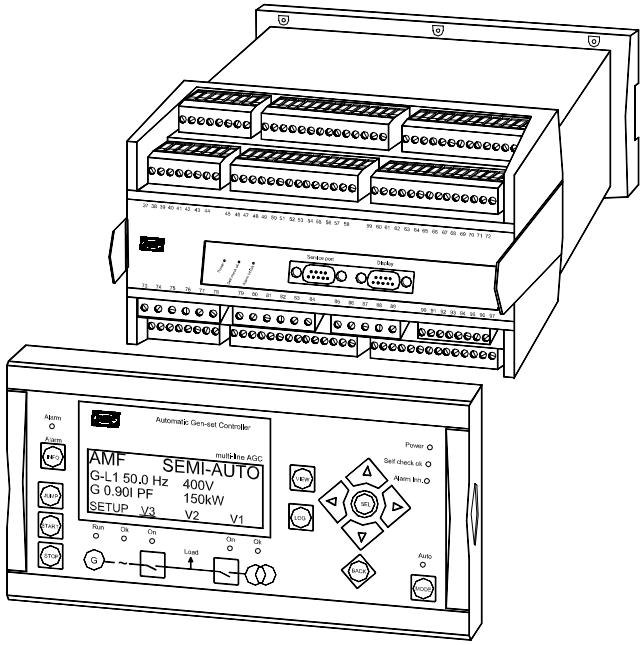
DEIF A/S

Description of options

Option P1,
Event and alarm printer
Automatic Gen-set Controller

4189340377B
SW version 2.1X.X



- *Description of option*
- *Functional description*
- *Parameter list*

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Table of contents

1. WARNINGS AND LEGAL INFORMATION 3

LEGAL INFORMATION AND RESPONSIBILITY 3
ELECTROSTATIC DISCHARGE AWARENESS 3
SAFETY ISSUES 3
DEFINITIONS 3

2. DESCRIPTION OF OPTION 4

P1 OPTION 4
WIRING 4

3. FUNCTIONAL DESCRIPTION 5

PRINTER SETUP 5
PRINTER FUNCTIONS 5
ADDITIONAL PRINTER FUNCTIONS 7

4. PARAMETER LIST 9

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

P1 option

Option P1 is a software option. In addition, a printer must be installed close to the controller unit. The maximum distance is 10 m.

Function	ANSI no.
Alarm and event printer	-

The event printer option can be used for two purposes:

- The alarm log holds up to 150 events. If the daily operator needs all log information including older log information than the events present in the event log, then it is necessary to make a print out. (The last 150 events can always be shown in the USW).
- For documentation purposes.

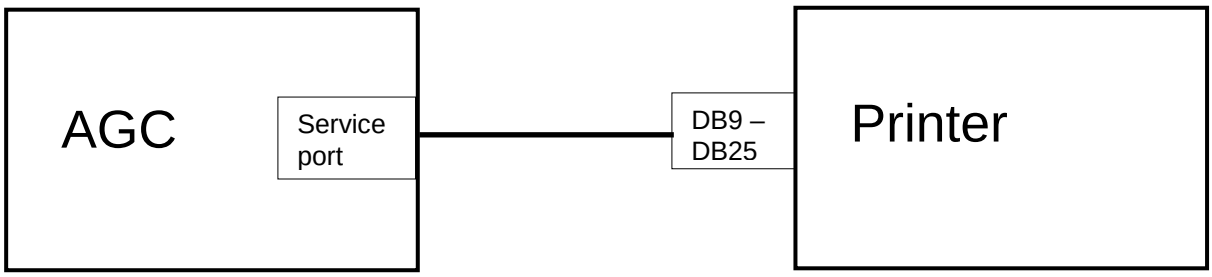
The printer used for this option is the EPSON LX 300+. The printer is NOT supplied with the option.

The events will not be printed for 10 sec. after disconnection of the USW and 10 sec. after unit power up.

When the function is enabled, the service port can only be used by the printer. If the PC utility software is connected to the service port, then menu 7371 has to be disabled in order to enable the USW.

Wiring

Principle diagram



The cable used between the controller unit and the printer is a 9-pole null-modem cabel. This cable is also used for the connection between the PC and the unit, if the PC utility software is used for configuration.

3. Functional description

Printer setup

The printer needs to use the following communication:

- Matrix printer
- Serial
- 8 data bit
- No parity bit
- One stop bit
- 64 characters/line
- The Baud rate has to be set to 9600 Baud

Only one of the Epson LX-300+ default settings has to be changed. This is the Baud rate that must be adjusted to 9600. Change the Baud rate by following the printer manual, or use these steps to do the necessary changes:

1. Make sure that the printer has paper and that the ribbon cartridge is in place
2. While holding down 'Tear Off', turn on the printer
3. When the printer has finished the printing, push 'Tear Off' to enter the English menu
4. Print one page with the current settings list and check the Baud rate. If it is different from 9600BPS, then continue these steps
5. Push 'Tear Off' to enter the change menu
6. Follow the instructions printed on the paper
7. Turn off the printer to finish setting

Printer functions

The printer function will start working, when the unit locates the printer on the service port, and the function is enabled in the menu 7371. This means that the events will be printed, when they occur.

One line will be printed and it looks like this:

```
1260 df/dt (ROCOF)  , UN-ACK   11,10Hz/s 01-01-2003 04:17.40.8
```

The following events will be printed:

Printed event	Description
UN-ACK	The alarm occurs
ACK	The alarm is acknowledged
CLEAR	The alarm situation disappears
EVENT	An event but not an alarm.

Event log example

```
GB  Open            , Event     0,00     01-01-2003 04:02.09.0
MB  Close           , Event     0,00     01-01-2003 04:02.09.0
GB  Close           , Event     0,00     01-01-2003 04:12.59.0
L2 password entered , Event     0,00     01-01-2003 04:13.58.5
1110 Over current 2 , UN-ACK  187,00%    01-01-2003 04:14.17.8
1110 Over current 2 , ACK       0,00%    01-01-2003 04:14.34.9
1110 Over current 2 , CLEAR     0,00%    01-01-2003 04:14.34.9
L2 password entered , Event     0,00     01-01-2003 04:17.29.8
1260 df/dt (ROCOF)  , UN-ACK   11,10Hz/s 01-01-2003 04:17.40.8
MB  Open            , Event     0,00     01-01-2003 04:17.40.9
1260 df/dt (ROCOF)  , ACK       0,00Hz/s 01-01-2003 04:18.01.7
1260 df/dt (ROCOF)  , CLEAR     0,00Hz/s 01-01-2003 04:18.01.7
MB  Close           , Event     0,00     01-01-2003 04:19.27.1
1380 Gen low-freq 2 , UN-ACK    0,00%    01-01-2003 04:22.44.0
1380 Gen low-freq 2 , ACK       0,00%    01-01-2003 04:22.50.2
1380 Gen low-freq 2 , CLEAR     0,00%    01-01-2003 04:24.49.1
```

Additional data

The ‘additional data’ function can be switched on in the menu 7372. Then the following data will be printed together with the specific event:

Generator data	Busbar data	Input data
Frequency	Frequency	Tacho
Power	U-L1L2	4-20mA input no. 98
Reactive power	U-L2L3	4-20mA input no. 100
Power factor	U-L3L1	4-20mA input no. 102
U-L1L2	df/dt	4-20mA input no. 104
U-L2L3	Vector jump	PT100 no. 106
U-L3L1		PT100 no. 109
I-L1		VDO input no. 104
I-L2		VDO input no. 105
I-L3		VDO input no. 106

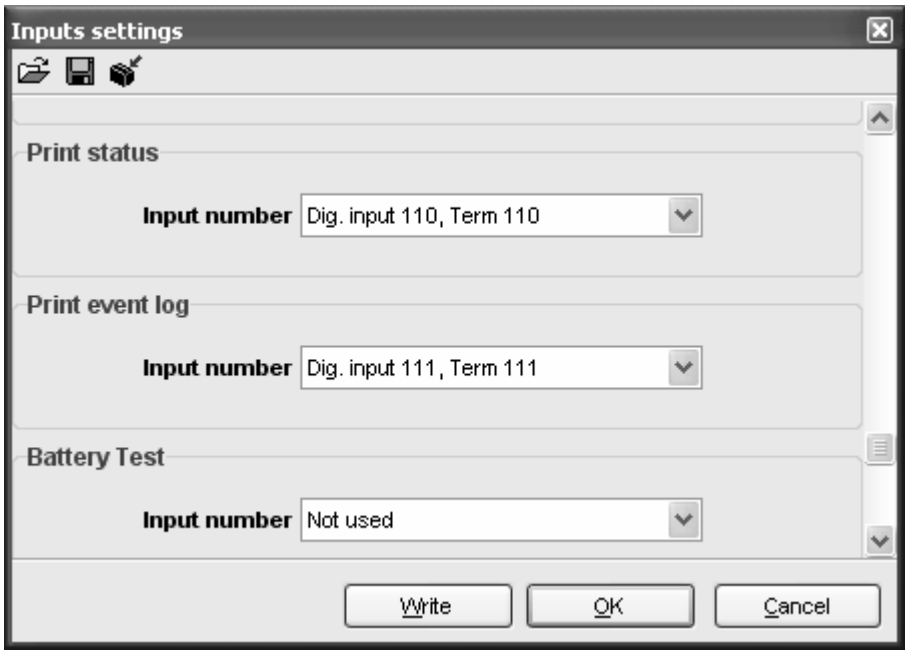
The additional data will then be added to each event and it looks like this (one event):

```
Print Status   , Event     1,00     13-02-2004 10:56.48.7
Generator data:                          Frequency =  50,58 Hz
  Power  =      9 kW, Q-power =      6 kvar, PF     =   0,60
  U-L1L2 =    447 V,  U-L2L3  =    453 V,    U-L3L1 =    451 V
  I-L1   =     25 A,  I-L2    =     23 A,    I-L3   =     24 A
Bus data:                                Frequency =  50,56 Hz
  U-L1L2 =    449 V,   U-L2L3 =    454 V,    U-L3L1 =    450 V
  df/dt  =    0,0 Hz/s,                Vector jump =    0,0 deg
Input:                                      Tacho  =      0 RPM
  Ana.1  =      0 mA,   Ana.2 =      0 mA,    Ana.3 =      0 mA
  Ana.4  =      0 mA, PT100 1 =    -45 Deg, PT100 2 =    -45 Deg
  VDO 1  =   11,8 bar,  VDO 2 =     47 deg,   VDO 3 =      0 %
```

Additional printer functions

Through digital inputs it is possible to make a print of the present running situation and to print the event log.

Select the inputs in the utility software. In this example inputs 110 and 111 are used.



Print event log

When this digital input is activated, the logged events will be printed (150 events).

It is possible to include the additional data in the event log or not. The number of events that will be printed together with additional data can be adjusted in the menu 7373. The event log holds 150 events so the adjustment goes from 1-150.

Example (no additional events printed):

```
GB  Open            , Event     0,00     01-01-2003 04:02.09.0
MB  Close           , Event     0,00     01-01-2003 04:02.09.0
GB  Close           , Event     0,00     01-01-2003 04:12.59.0
L2 password entered , Event     0,00     01-01-2003 04:13.58.5
1110 Over current 2 , UN-ACK  187,00%    01-01-2003 04:14.17.8
1110 Over current 2 , ACK       0,00%    01-01-2003 04:14.34.9
1110 Over current 2 , CLEAR     0,00%    01-01-2003 04:14.34.9
L2 password entered , Event     0,00     01-01-2003 04:17.29.8
1260 df/dt (ROCOF)  , UN-ACK   11,10Hz/s 01-01-2003 04:17.40.8
MB  Open            , Event     0,00     01-01-2003 04:17.40.9
1260 df/dt (ROCOF)  , ACK       0,00Hz/s 01-01-2003 04:18.01.7
1260 df/dt (ROCOF)  , CLEAR     0,00Hz/s 01-01-2003 04:18.01.7
MB  Close           , Event     0,00     01-01-2003 04:19.27.1
1380 Gen low-freq 2 , UN-ACK    0,00%    01-01-2003 04:22.44.0
1380 Gen low-freq 2 , ACK       0,00%    01-01-2003 04:22.50.2
1380 Gen low-freq 2 , CLEAR     0,00%    01-01-2003 04:24.49.1
```

Example (2 events printed with additional data):

```
GB  Open            , Event     0,00     01-01-2003 04:02.09.0
Generator data:                           Frequency =  50,58 Hz
  Power  =       9 kW, Q-power =       6 kvar, PF     =   0,60
  U-L1L2 =     447 V,  U-L2L3  =     453 V,    U-L3L1 =    451 V
  I-L1   =      25 A,  I-L2    =      23 A,    I-L3   =     24 A
Bus data:                                 Frequency =  50,56 Hz
  U-L1L2 =     449 V,   U-L2L3 =     454 V,    U-L3L1 =    450 V
  df/dt  =     0,0 Hz/s,                 Vector jump =    0,0 deg
Input:                                         Tacho  =      0 RPM
  Ana.1  =       0 mA,   Ana.2 =       0 mA,    Ana.3 =      0 mA
  Ana.4  =       0 mA, PT100 1 =     -45 Deg, PT100 2 =    -45 Deg
  VDO 1  =    11,8 bar,  VDO 2 =      47 deg,   VDO 3 =      0 %
MB  Close           , Event     0,00     01-01-2003 04:02.09.0
Generator data:                           Frequency =  50,58 Hz
  Power  =       9 kW, Q-power =       6 kvar, PF     =   0,60
  U-L1L2 =     447 V,  U-L2L3  =     453 V,    U-L3L1 =    451 V
  I-L1   =      25 A,  I-L2    =      23 A,    I-L3   =     24 A
Bus data:                                 Frequency =  50,56 Hz
  U-L1L2 =     449 V,   U-L2L3 =     454 V,    U-L3L1 =    450 V
  df/dt  =     0,0 Hz/s,                 Vector jump =    0,0 deg
Input:                                         Tacho  =      0 RPM
  Ana.1  =       0 mA,   Ana.2 =       0 mA,    Ana.3 =      0 mA
  Ana.4  =       0 mA, PT100 1 =     -45 Deg, PT100 2 =    -45 Deg
  VDO 1  =    11,8 bar,  VDO 2 =      47 deg,   VDO 3 =      0 %
And so on…
```

Status print

When this digital input is activated, the current status of the system will be printed. A status print will look like this:

```
Print Status   , Event     1,00     13-02-2004 10:56.48.7
Generator data:                           Frequency =  50,58 Hz
  Power  =       9 kW, Q-power =       6 kvar, PF     =   0,60
  U-L1L2 =     447 V,  U-L2L3  =     453 V,    U-L3L1 =    451 V
  I-L1   =      25 A,  I-L2    =      23 A,    I-L3   =     24 A
Bus data:                                 Frequency =  50,56 Hz
  U-L1L2 =     449 V,   U-L2L3 =     454 V,    U-L3L1 =    450 V
  df/dt  =     0,0 Hz/s,                 Vector jump =    0,0 deg
Input:                                         Tacho  =      0 RPM
  Ana.1  =       0 mA,   Ana.2 =       0 mA,    Ana.3 =      0 mA
  Ana.4  =       0 mA, PT100 1 =     -45 Deg, PT100 2 =    -45 Deg
  VDO 1  =    11,8 bar,  VDO 2 =      47 deg,   VDO 3 =      0 %
```

4. Parameter list

It is possible to change the parameters used with the printer. The parameters can be changed via the PC utility software or in menus 7370-7373 in the system menu.

The parameters which can be changed are:

Enable: Enable this when the printer is connected to the service port.

When the function is enabled, the service port can only be used by the printer. If the PC utility software is connected to the service port, menu 7371 has to be disabled to enable the USW.

Add: Enable this if additional data have to be printed for every event; additional data like power, voltage etc.

Events: This counter is the number of events that will be printed with additional data, when the digital input 'Print event log' is activated.

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

7370 Event printer

No.	Setting		Min. setting	Max. setting	Factory setting
7371	Event printer	Enable printer	OFF	ON	OFF
7372	Event printer	Enable add data	OFF	ON	OFF
7373	Event printer	Print events	1	150	5