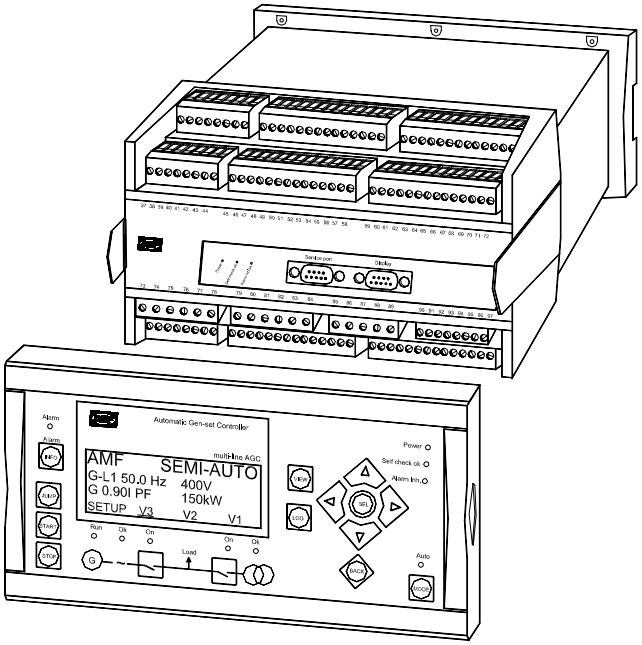
DEIF A/S

Description of options

Option M12,
Configurable I/O extension cards
13 binary inputs/4 relay outputs
Automatic Gen-set Controller

4189340390B
SW version 2.3X.X



- *Description of options*
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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

M12 option

Option M12 is a hardware option, and therefore an extra PCB is placed in slot #3 in addition to the standard installed hardware. The option consists of the following:

Function	ANSI no.
13 x binary inputs for control and/or alarms	77
4 x digital outputs	74

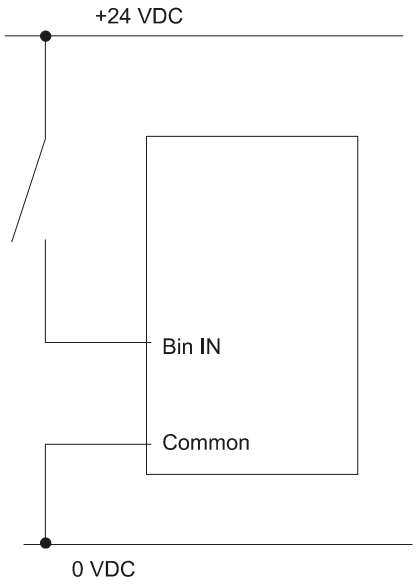
If option G3 is already installed, then option M12 is a software upgrade.

Terminal description

Term.	Function	Technical data	Description
37			**Used for the option G3**
38			
39			
40			
41			
42			
43	Digital input 43	Optocoupler	Configurable
44	Digital input 44	Optocoupler	Configurable
45	Digital input 45	Optocoupler	Configurable
46	Digital input 46	Optocoupler	Configurable
47	Digital input 47	Optocoupler	Configurable
48	Digital input 48	Optocoupler	Configurable
49	Digital input 49	Optocoupler	Configurable
50	Digital input 50	Optocoupler	Configurable
51	Digital input 51	Optocoupler	Configurable
52	Digital input 52	Optocoupler	Configurable
53	Digital input 53	Optocoupler	Configurable
54	Digital input 54	Optocoupler	Configurable
55	Digital input 55	Optocoupler	Configurable
56	Com.	Common	Common for terminals 43 to 55
57	NO	Relay 5	Configurable
58	Com.	250V AC/8A	
59	NO	Relay 6	Configurable
60	Com.	250V AC/8A	
61	NO	Relay 7	Configurable
62	Com.	250V AC/8A	
63	NO	Relay 8	Configurable
64	Com.	250V AC/8A	

DC wiring

The wiring is done by connecting 24 volts across the common and the input terminal. All binary inputs are 24V DC bi-directional optocoupler. Typical input is:



The binary inputs use fixed signals.

3. Functional description

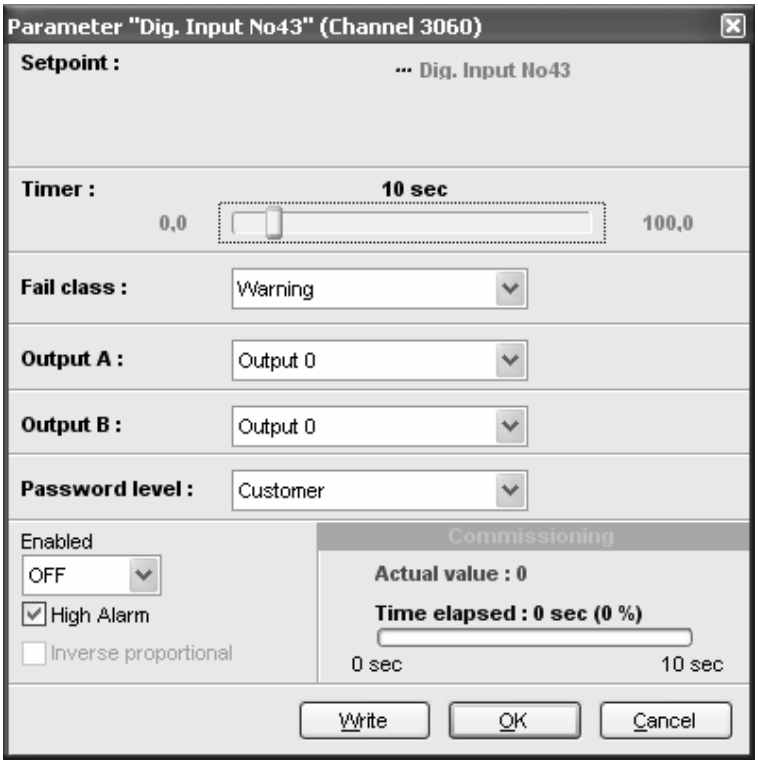
PC utility software

The PC utility software is a Windows® based software, which can be downloaded from our website www.deif.com. To adjust the inputs via the PC utility software, a computer must be connected to the controller unit. Furthermore, the unit parameters must be uploaded to the computer.

Binary input

The binary inputs available in this option can be used for two purposes:

1. Protection (alarm) inputs
2. Function inputs



Protection inputs

The protection inputs can be set up via the PC utility software.

Set point

The text can be changed by clicking the button ... which is placed on the left hand side of the existing text. The unit can be selected to relevant values, e.g. volt, amp, RPM etc.

Timer

The timer can be adjusted by moving the glider left or right or by clicking the present set point. (Above click '**10 sec**').

Fail class

Select the required fail class from the drop-down list.

Output A/output B
Select which relay to activate at an alarm, if this is necessary.

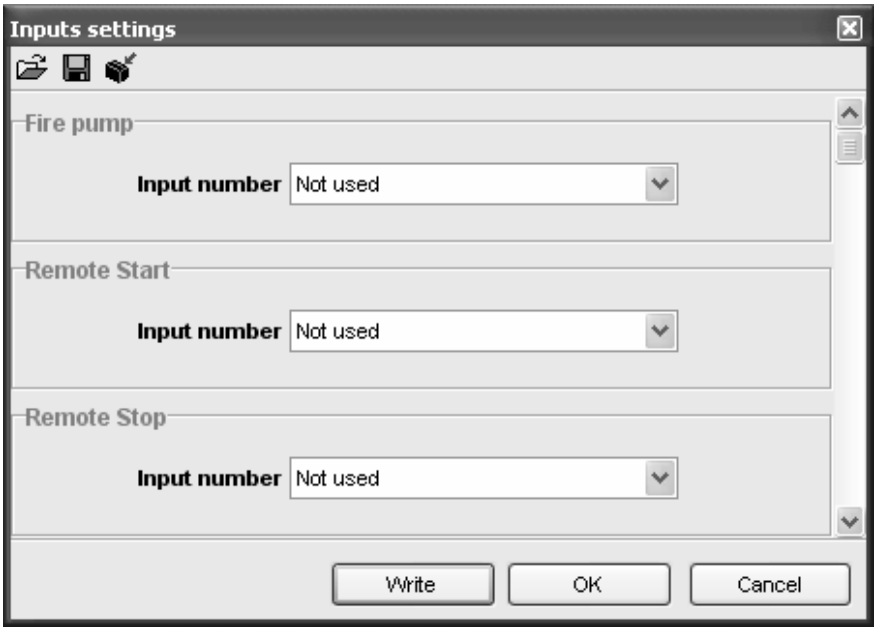
Password level
Select which password level is needed to modify this parameter.

Enable
To activate the alarm function select ON or RUN in the list. (If RUN is selected, the alarm function will be activated when the gen-set is running).

High alarm
Mark this check box to get an alarm, when the input is activated. Unmark this check box to get an alarm, when the input is deactivated.

Function input

The function inputs can be set up via the PC utility software.



Select the input number in the drop-down list based on the function it needs to activate.

Relay setup

The relays can be configured in two different ways as illustrated below.

Alarm relay function
When an alarm activates the relay, it will remain activated for as long as the alarm is present and unacknowledged.

Limit function
When an alarm activates the relay, no alarm message is displayed. After the condition activating the relay has returned to normal, the relay will deactivate, when the 'off delay' has expired.

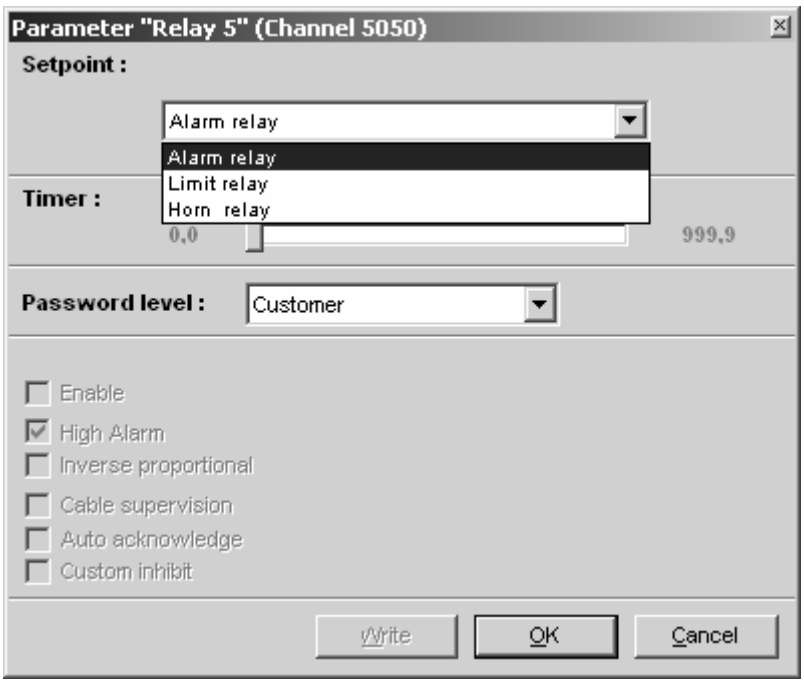
Horn relay function
When an alarm activates, the relays configured to 'Horn' will activate and an alarm message is displayed. After the condition activating the relay has returned to normal, the relay will deactivate, when the 'off delay' has expired.

The setup of the relay is done in the I/O menu ('OUT' menu). All relays are set up in the same way. This example illustrates relay 6:

No.	Setting		First/min. setting	Second/max. setting	Third setting	Factory setting
5061	Relay 6	Function	Alarm	Limit	Horn	Alarm
5062	Relay 6	Off delay	0.0 s	999.9 s	-	5.0 s

The 'off delay' is the time between the disappearance of the event that caused the relay to activate and the actual deactivation of the relay.

PC utility software



4. Parameter list

Digital inputs

Please refer to the Designer's Reference Handbook for a description of the fail class selections.

These parameters are used when the binary inputs are used as protection inputs.

3060 Digital input no. 43

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3061	Dig. input no. 43	Timer	0.0 s	100.0 s	-	10.0 s
3062	Dig. input no. 43	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3063	Dig. input no. 43	Relay output B	R0 (none)		-	R0 (none)
3064	Dig. input no. 43	Enable	OFF	ON	RUN	OFF
3065	Dig. input no. 43	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3066	Dig. input no. 43	N/O - N/C	N/O	N/C	-	N/O

3070 Digital input no. 44

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3071	Dig. input no. 44	Timer	0.0 s	100.0 s	-	10.0 s
3072	Dig. input no. 44	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3073	Dig. input no. 44	Relay output B	R0 (none)		-	R0 (none)
3074	Dig. input no. 44	Enable	OFF	ON	RUN	OFF
3075	Dig. input no. 44	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3076	Dig. input no. 44	N/O - N/C	N/O	N/C	-	N/O

3080 Digital input no. 45

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3081	Dig. input no. 45	Timer	0.0 s	100.0 s	-	10.0 s
3082	Dig. input no. 45	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3083	Dig. input no. 45	Relay output B	R0 (none)		-	R0 (none)
3084	Dig. input no. 45	Enable	OFF	ON	RUN	OFF
3085	Dig. input no. 45	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3086	Dig. input no. 45	N/O - N/C	N/O	N/C	-	N/O

3090 Digital input no. 46

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3091	Dig. input no. 46	Timer	0.0 s	100.0 s	-	10.0 s
3092	Dig. input no. 46	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3093	Dig. input no. 46	Relay output B	R0 (none)		-	R0 (none)
3094	Dig. input no. 46	Enable	OFF	ON	RUN	OFF
3095	Dig. input no. 46	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3096	Dig. input no. 46	N/O - N/C	N/O	N/C	-	N/O

3100 Digital input no. 47

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3101	Dig. input no. 47	Timer	0.0 s	100.0 s	-	10.0 s
3102	Dig. input no. 47	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3103	Dig. input no. 47	Relay output B	R0 (none)		-	R0 (none)
3104	Dig. input no. 47	Enable	OFF	ON	RUN	OFF
3105	Dig. input no. 47	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3106	Dig. input no. 47	N/O - N/C	N/O	N/C	-	N/O

3110 Digital input no. 48

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3111	Dig. input no. 48	Timer	0.0 s	100.0 s	-	10.0 s
3112	Dig. input no. 48	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3113	Dig. input no. 48	Relay output B	R0 (none)		-	R0 (none)
3114	Dig. input no. 48	Enable	OFF	ON	RUN	OFF
3115	Dig. input no. 48	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3116	Dig. input no. 48	N/O - N/C	N/O	N/C	-	N/O

3120 Digital input no. 49

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3121	Dig. input no. 49	Timer	0.0 s	100.0 s	-	10.0 s
3122	Dig. input no. 49	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3123	Dig. input no. 49	Relay output B	R0 (none)		-	R0 (none)
3124	Dig. input no. 49	Enable	OFF	ON	RUN	OFF
3125	Dig. input no. 49	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3126	Dig. input no. 49	N/O - N/C	N/O	N/C	-	N/O

3130 Digital input no. 50

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3131	Dig. input no. 50	Timer	0.0 s	100.0 s	-	10.0 s
3132	Dig. input no. 50	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3133	Dig. input no. 50	Relay output B	R0 (none)		-	R0 (none)
3134	Dig. input no. 50	Enable	OFF	ON	RUN	OFF
3135	Dig. input no. 50	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3136	Dig. input no. 50	N/O - N/C	N/O	N/C	-	N/O

3140 Digital input no. 51

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3141	Dig. input no. 51	Timer	0.0 s	100.0 s	-	10.0 s
3142	Dig. input no. 51	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3143	Dig. input no. 51	Relay output B	R0 (none)		-	R0 (none)
3144	Dig. input no. 51	Enable	OFF	ON	RUN	OFF
3145	Dig. input no. 51	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3146	Dig. input no. 51	N/O - N/C	N/O	N/C	-	N/O

3150 Digital input no. 52

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3151	Dig. input no. 52	Timer	0.0 s	100.0 s	-	10.0 s
3152	Dig. input no. 52	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3153	Dig. input no. 52	Relay output B	R0 (none)		-	R0 (none)
3154	Dig. input no. 52	Enable	OFF	ON	RUN	OFF
3155	Dig. input no. 52	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3156	Dig. input no. 52	N/O - N/C	N/O	N/C	-	N/O

3160 Digital input no. 53

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3161	Dig. input no. 53	Timer	0.0 s	100.0 s	-	10.0 s
3162	Dig. input no. 53	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3163	Dig. input no. 53	Relay output B	R0 (none)		-	R0 (none)
3164	Dig. input no. 53	Enable	OFF	ON	RUN	OFF
3165	Dig. input no. 53	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3166	Dig. input no. 53	N/O - N/C	N/O	N/C	-	N/O

3170 Digital input no. 54

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3171	Dig. input no. 54	Timer	0.0 s	100.0 s	-	10.0 s
3172	Dig. input no. 54	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3173	Dig. input no. 54	Relay output B	R0 (none)		-	R0 (none)
3174	Dig. input no. 54	Enable	OFF	ON	RUN	OFF
3175	Dig. input no. 54	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3176	Dig. input no. 54	N/O - N/C	N/O	N/C	-	N/O

3180 Digital input no. 55

No.	Setting		Min. setting	Max. setting	Third setting	Factory setting
3181	Dig. input no. 55	Timer	0.0 s	100.0 s	-	10.0 s
3182	Dig. input no. 55	Relay output A	R0 (none)	Option dependent	-	R0 (none)
3183	Dig. input no. 55	Relay output B	R0 (none)		-	R0 (none)
3184	Dig. input no. 55	Enable	OFF	ON	RUN	OFF
3185	Dig. input no. 55	Fail class	Alarm (1)	Trip MB (6)	-	Warning (2)
3186	Dig. input no. 55	N/O - N/C	N/O	N/C	-	N/O

Relay outputs

5050 Relay 5

No.	Setting		First/min. setting	Second/max. setting	Third setting	Factory setting
5051	Relay 5	Function	Alarm	Limit	Horn	Alarm
5052	Relay 5	Off delay	0.0 s	999.9 s	-	5.0 s

5060 Relay 6

No.	Setting		First/min. setting	Second/max. setting	Third setting	Factory setting
5061	Relay 6	Function	Alarm	Limit	Horn	Alarm
5062	Relay 6	Off delay	0.0 s	999.9 s	-	5.0 s

5070 Relay 7

No.	Setting		First/min. setting	Second/max. setting	Third setting	Factory setting
5071	Relay 7	Function	Alarm	Limit	Horn	Alarm
5072	Relay 7	Off delay	0.0 s	999.9 s	-	5.0 s

5080 Relay 8

No.	Setting		First/min. setting	Second/max. setting	Third setting	Factory setting
5081	Relay 8	Function	Alarm	Limit	Horn	Limit
5082	Relay 8	Off delay	0.0 s	999.9 s	-	5.0 s