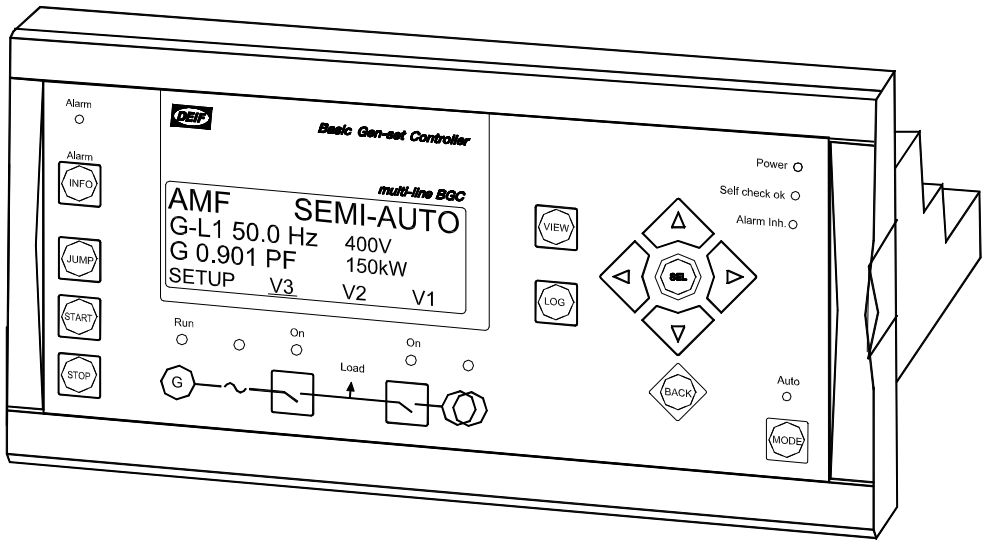
DEIF A/S

Description of options

Option H1,
CAN open communication
Basic Gen-set Controller

4189340426B
SW version 2.1X.X



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

CE

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

Table of contents

1. Warnings and legal information

Legal information and responsibility

DEIF takes no responsibility for installation or operation of the engine set. If there is any doubt about how to install or operate the engine 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.

Factory settings

The unit is delivered with certain factory settings. Given the fact that these settings are based on average values, they are not necessarily the correct settings for matching the individual engine. Thus precautions must be taken to check the settings before running the engine.

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.

Warnings

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

This document describes the functionality of the CAN open communication for the BGC.

Function	ANSI no.
CAN open communication	-

Terminal description

The CAN terminals are placed in slot #2 or slot #3 in addition to the standard hardware.

Terminals		Function	Description
Slot #2	**Slot #3**		
47	55	Can-H	CAN bus card option H1, CAN open communication
48	56	Ground	
49	57	Can-L	
50	58	Can-H	
51	59	Ground	
52	60	Can-L	
53	61	Not used	
54	62	Not used	

For wiring diagram, please refer to the installation instructions.

3. Functional description

General introduction, option H1

Option H1 is a CAN bus based serial interface for the Basic Gen-set Controller, BGC. The CAN protocol implementation is based on the CAN open Application Layer and Communication Profile Specification CiA Draft Standard 301 Version 4.02.

This protocol does not describe all functionalities of the CAN open communication which have been implemented and are running in accordance with the CAN open standards and therefore require no consideration from the user. Please visit **http://www.can-cia.com** to download a detailed explanation of the CAN open description.

Transfer types

The transfer types are described shortly.

PDO transfer

Process Data Objects (PDO) provide direct access to application objects within a device, e.g. a BGC with option H1. The application objects for PDO transfer are the measurement values which can be seen in the tables ‘Application objects for PDO transfer’ (page 9) and ‘Application objects for SDO transfer’, (page 12).

PDOs are used to perform real-time transfers of short blocks of high priority data. Each PDO telegram must contain one COB-ID (Communication Object-Identifier) and a maximum of eight bytes of data (the application objects).

PDO telegrams are used for transfer of measurement values in this protocol (e.g. UL1-L2, UL2-L3, UL3-L1, UL1-N) from a slave device (multi-line 2 unit) to the master (PLC or computer).

SDO transfer

Service Data Object (SDO) can be used for access with read/write attributes of all application objects (some objects can only be accessed with reading or writing attribute) implemented in the multi-line 2 unit regarding CAN open.

SDO telegrams are used for transfer of measurement data from a slave device (multi-line 2 unit) to the master (PLC), and it is used for transferring commands from the master device (PLC) to the slave device (multi-line 2 unit).

NMT transfer

Network Management (NMT) transfer is used to control the application in the slave device from the master.

Baud rate supported

Bit rates	Bus length
125 kbit/s	500 m
50 kbit/s	1000 m
20 kbit/s	2500 m
10 kbit/s	5000 m

The bit rate is selectable at menu 4082 and the unit CAN open ID at menu 4081.

When the bit rate (or the CAN open ID) is changed, the multi-line 2 unit must be reset (powered down) to activate the new communication speed (or CAN open ID).

PDO transfer

PDO triggering mode

The transmission type 5 to 240 is supported in the multi-line 2 units. (Default value is 5 in the EDS file).

Each time the multi-line 2 unit has received 5 synchronisation objects (sync. telegrams with the COB-ID 0x80) from the master, the slave device is triggered to a response with all PDO telegrams using the transmission type 5 as triggering mode.

It is recommended to use the same transmission type for all the PDOs' telegrams in this protocol.

PDO static mapping

It is not possible to change the address ranges of the values used for PDO transfer. Therefore the values map in each PDO is static for application objects used for PDO transfer.

PDO configuration and allocation of COB-ID

In this application for CAN open there is room for 8 transmit PDOs, all PDOs are used for transfer of measurement values.

The configuration of a PDO consists of setting the communication parameters of each PDO itself, the COB-ID and the transmission type. This protocol supports 11 bit identifiers, meaning the possibility of 2047 different COB-IDs.

Do not use COB-IDs for PDO transfer, which are used for other communication processes in CAN open.

Each BGC unit must have a unique CAN open node-ID, which is configured in the display or in the PC utility software.

COB-IDs used for PDO transfer

The tables show the default selected COB-IDs (communication object identifier), which are used for PDO transfer.

Default COB-ID, node 1

COB-ID		PDO telegram no.
Dec.	Hex.	
259	0x103	1
386	0x182	2
514	0x202	3
642	0x282	4
770	0x302	5
898	0x382	6
1026	0x402	7
1154	0x482	8

Default COB-ID, node 2

COB-ID		PDO telegram no.
Dec.	Hex.	
260	0x104	1
387	0x183	2
515	0x203	3
643	0x283	4
771	0x303	5
899	0x383	6
1027	0x403	7
1155	0x483	8

Example of PDO telegram

Examples of transmitting default PDO telegrams from slave device with node-ID number 1:

Field name	Example
COB-ID	0x103
U_{L1-L2}	2 bytes
U_{L2-L3}	2 bytes
U_{L3-L1}	2 bytes
U_{L1-N}	2 bytes

Identifier allocation

In networks where the identifier allocation is to be altered by a configuration tool using SDOs (SDO transfers are used to access all objects implemented in the BGC unit regarding CAN open), there are some recommendations which should be taken into account.

Object	Resulting identifiers (COB-ID)
NMT module control	0
Synchronisation object	128 (0x80)
Emergency object	129-255 (0x81-0xFF)
Time stamp	256 (100H)
SDO (transmit)	1409-1535 (0x581-0x5FF)
SDO (receive)	1537-1663 (0x601-0x67F)
NMT error control and boot-up service	1793-1919 (0x701-0x77F)

Be aware of the allocation of COB-ID for PDO transfer, because some COB-IDs are predefined for other communication processes in CAN open.

If the configuration tools cannot read the default values for the COB-ID for PDOs from the EDS file, the COB-IDs have to be allocated manually.

Additional information

Please note the below-mentioned important information regarding CAN open features. These points must be taken into consideration when using CAN open:

1. This protocol does not support any device profile.
2. Object index 1000 and subindex 0 for device profile are implemented with the value 0x00.
3. Object index 100C and subindex 0 for guard time are implemented with the value 0x1000.
4. The guarding time must be 1000 ms as a minimum.

Please also refer to www.can-cia.com for details.

4. Protocol tables

Application objects for PDO transfer

The availability of data is dependent on whether it is related to an option and whether the option is present. Data values not available are set to 0xFF. EIC alarms and values depend on option H5 and type of engine set.

Content	Type	PDO no.
U_{L1-L2}	Generator voltage. Measured in [V]	1
U_{L2-L3}	Generator voltage. Measured in [V]	1
U_{L3-L1}	Generator voltage. Measured in [V]	1
U_{L1-N}	Generator voltage. Measured in [V]	1
U_{L2-N}	Generator voltage. Measured in [V]	2
U_{L3-N}	Generator voltage. Measured in [V]	2
F_{GEN}	Generator frequency. Measured in [Hz/100]	2
Cos-phi	-99...0...100 generator cosinus-phi. Measured in cos-phi:100. Negative value means capacitive cos-phi	2
I_{L1}	Generator current. Measured in [A]	3
I_{L2}	Generator current. Measured in [A]	3
I_{L3}	Generator current. Measured in [A]	3
P_{GEN}	Generator active power. Measured in [kW]. Negative value means reverse power	3
Q_{GEN}	Generator reactive power. Measured in [kVAr]. Positive value means generated inductive reactive power	4
S_{GEN}	Generator seeming power. Measured in [kVA]	4
[HI] E_{GEN}	Energy counter. Measured in [kWh]. Max. 300000 MWh	4
[LO] E_{GEN}	Energy counter. Measured in [kWh]. Max. 300000 MWh	4
Alarms	Bit 0 1010. U-BB high step 1 Bit 1 1020. U-BB high step 2 Bit 2 1030. U-BB low step 1 Bit 3 1040. U-BB low step 2 Bit 4 1050. f-BB high step 1 Bit 5 1060. f-BB high step 2 Bit 6 1070. f-BB low step 1 Bit 7 1080. f-BB low step 2 Bit 8 1090. Reverse power Bit 9 1100. High current step 1 Bit 10 1110. High current step 2 Bit 11 1120. High power step 1 Bit 12 1130. High power step 2 Bit 13 1140. Unbalance current Bit 14 1150. Unbalance voltage	5

Content	Type		PDO no.
Alarms	Bit 0	1160. Q import	5
	Bit 1	1170. Q export	
	Bit 2	1180. df/dt	
	Bit 3	1190. Vector jump	
	Bit 4	2060. GB sync. fail.	
	Bit 5	4220. Supply alarm	
	Bit 6	GB breaker close fail.	
	Bit 7	GB breaker open fail.	
	Bit 8	GB breaker position feedback fail.	
	Bit 9	Phase sequence error	
	Bit 10	2070. MB sync. fail.	
	Bit 11	MB breaker close fail.	
	Bit 12	MB breaker open fail.	
	Bit 13	MB breaker position feedback fail.	
	Bit 14	4390. DG volt./frequency fail.	
	Bit 15	Tacho fail.	
Alarms	Bit 0	1210. U-DG high step 1	5
	Bit 1	1220. U-DG high step 2	
	Bit 2	1230. U-DG low step 1	
	Bit 3	1240. U-DG low step 2	
	Bit 4	1250. f-DG high step 1	
	Bit 5	1260. f-DG high step 2	
	Bit 6	1270. f-DG low step 1	
	Bit 7	1280. f-DG low step 2	
	Bit 8	1290. Peak current 1	
	Bit 9	1300. Peak current 2	
	Bit 10	GOV regulation error	
	Bit 11	AVR regulation error	
	Bit 12	Reserved	
	Bit 13	DG start fail.	
	Bit 14	Ramp down fail.	
	Bit 15	DG stop fail.	
Alarms	Bit 0	1800. 4-20mA in No3.1	5
	Bit 1	1820. 4-20mA in No4.1	
	Bit 2	1840. 4-20mA in No5	
	Bit 3	1850. 4-20mA in No6	
	Bit 4	1600. Binary input 11 option PCB	
	Bit 5	1610. Binary input 12 option PCB	
	Bit 6	1620. Binary input 13 option PCB	
	Bit 7	1630. Binary input 14 option PCB	
	Bit 8	1640. Binary input 15 option PCB	
	Bit 9	1650. Binary input 16 option PCB	
	Bit 10	1660. Binary input 17 option PCB	
Alarms	Bit 0		6
	Bit 1		
	Bit 2		
	Bit 3	1700. Binary input 1 conf. term.	
	Bit 4	1710. Binary input 2 conf. term.	
	Bit 5	1720. Binary input 3 conf. term.	
	Bit 6	1730. Binary input 4 conf. term.	
	Bit 7	1740. Binary input 5 conf. term.	
	Bit 8	1750. Binary input 6 conf. term.	
	Bit 9	1760. Binary input 7 conf. term.	
	Bit 10		
	Bit 11		
	Bit 12		

Content	Type	PDO no.
	Reserved	6
	Reserved	6
Status	Bit 0 GB on Bit 1 MB on Bit 2 Alarm inhibit Bit 3 DG running Bit 4 Timer, DG volt./frequency OK Bit 5 Mains fail. Bit 6 Auto mode Bit 7 Semi mode Bit 8 Test mode Bit 9 Man. mode Bit 10 Island Bit 11 AMF Bit 12 RES Bit 13 Fixed power	6
$U_{DG\text{-}Max.}$	Generator max. voltage. Measured in [V]	7
$U_{DG\text{-}Min.}$	Generator min. voltage. Measured in [V]	7
U_{SUPPLY}	Supply voltage. Measured in [V/10]	7
F_{BB}	Busbar frequency. Measured in [Hz/100]	7
	Number of alarms	8
	Number of unacknowledged alarms	8
$U_{BBL1\text{-}L2}$	Busbar. Measured in [V]	8
$U_{BBL1\text{-}N}$	Busbar voltage. Measured in [V]	8

Application objects for SDO transfer

These values can ONLY be accessed with SDO transfer.

Control register table

Index	Sub-index	Content	Description
2011	0	Control command	Bit 0 This bit must be 1 when writing the command word If the bit is 0, the control command is don't care Bit 1 Start Bit 2 GB on Bit 3 GB off Bit 4 Stop Bit 5 MB on Bit 6 MB off Bit 7 Bit 8 Bit 9 Bit 10 Alarm ack. Bit 11 Auto Bit 12 Semi Bit 13 Test Bit 14 Man. All bits are automatically reset in the BGC. * The selection of remote/local mode must be made with a pulse. If the command is repeated, it will overrule the selection from the display.

*: The selection of remote/local mode must be made with a pulse. If the command is repeated, it will overrule the selection from the display.

Measurement value table

Index	Sub index	Content	SDO transfer only
2000	0		Application software version
2001	1	U_{L1-L2}	Generator voltage. Measured in [V]
2001	2	U_{L2-L3}	Generator voltage. Measured in [V]
2001	3	U_{L3-L1}	Generator voltage. Measured in [V]
2001	4	U_{L1-N}	Generator voltage. Measured in [V]
2001	5	U_{L2-N}	Generator voltage. Measured in [V]
2001	6	U_{L3-N}	Generator voltage. Measured in [V]
2002	1	F_{GEN}	Generator frequency. Measured in [Hz/100]
2002	2	Cos-phi	-99...0...100 generator cosinus-phi. Measured in cos-phi:100. Negative value means capacitive cos-phi
2002	3	P_{GEN}	Generator active power. Measured in [kW]. Negative value means reverse power
2002	4	Q_{GEN}	Generator reactive power. Measured in [kVAr]. Positive value means generated inductive reactive power
2003	1	I_{L1}	Generator current. Measured in [A]
2003	2	I_{L2}	Generator current. Measured in [A]
2003	3	I_{L3}	Generator current. Measured in [A]
2004	1	$U_{BBL1-L2}$	Busbar. Measured in [V]
2004	2	F_{BB}	Busbar frequency L1. Measured in [Hz/100]
2005	1	[HI] E_{GEN}	Energy counter. Measured in [kWh]. Max. 300000 MWh
2005	2	[LO] E_{GEN}	Energy counter. Measured in [kWh]. Max. 300000 MWh
2006	1	Alarms	Bit 0 1010. U-BB high step 1 Bit 1 1020. U-BB high step 2 Bit 2 1030. U-BB low step 1 Bit 3 1040. U-BB low step 2 Bit 4 1050. f-BB high step 1 Bit 5 1060. f-BB high step 2 Bit 6 1070. f-BB low step 1 Bit 7 1080. f-BB low step 2 Bit 8 1090. Reverse power Bit 9 1100. High current step 1 Bit 10 1110. High current step 2 Bit 11 1120. High power step 1 Bit 12 1130. High power step 2 Bit 13 1140. Unbalance current Bit 14 1150. Unbalance voltage

Index	Sub index	Content	SDO transfer only	
2006	2	Alarms	Bit 0	1160. Q import
			Bit 1	1170. Q export
			Bit 2	1180. df/dt
			Bit 3	1190. Vector jump
			Bit 4	2060. GB sync. fail.
			Bit 5	4220. Supply alarm
			Bit 6	GB breaker close fail.
			Bit 7	GB breaker open fail.
			Bit 8	GB breaker position feedback fail.
			Bit 9	Phase sequence error
			Bit 10	2070. MB sync. fail.
			Bit 11	MB breaker close fail.
			Bit 12	MB breaker open fail.
			Bit 13	MB breaker position feedback fail.
			Bit 14	4390. DG volt./frequency fail.
			Bit 15	Tacho fail.
2006	3	Alarms	Bit 0	1210. U-DG high step 1
			Bit 1	1220. U-DG high step 2
			Bit 2	1230. U-DG low step 1
			Bit 3	1240. U-DG low step 2
			Bit 4	1250. f-DG high step 1
			Bit 5	1260. f-DG high step 2
			Bit 6	1270. f-DG low step 1
			Bit 7	1280. f-DG low step 2
			Bit 8	1290. Peak current 1
			Bit 9	1300. Peak current 2
			Bit 10	GOV regulation error
			Bit 11	AVR regulation error
			Bit 12	Reserved
			Bit 13	DG start fail.
			Bit 14	Ramp down fail.
			Bit 15	DG stop fail.
2006	4	Alarms	Bit 0	1800. 4-20mA in No3.1
			Bit 1	1820. 4-20mA in No4.1
			Bit 2	1840. 4-20mA in No5
			Bit 3	1850. 4-20mA in No6
			Bit 4	1600. Binary input 11 option PCB
			Bit 5	1610. Binary input 12 option PCB
			Bit 6	1620. Binary input 13 option PCB
			Bit 7	1630. Binary input 14 option PCB
			Bit 8	1640. Binary input 15 option PCB
			Bit 9	1650. Binary input 16 option PCB
			Bit 10	1660. Binary input 17 option PCB

Index	Sub index	Content	SDO transfer only
2006	5		Bit 0 Bit 1 Bit 2 Bit 3 1700. Binary input 1 conf. term. Bit 4 1710. Binary input 2 conf. term. Bit 5 1720. Binary input 3 conf. term. Bit 6 1730. Binary input 4 conf. term. Bit 7 1740. Binary input 5 conf. term. Bit 8 1750. Binary input 6 conf. term. Bit 9 1760. Binary input 7 conf. term. Bit 10 Bit 11 Bit 12
2006	6		Reserved
2006	7		Reserved
2007	0	Status	Bit 0 1160. Q import Bit 1 1170. Q export Bit 2 1180. df/dt Bit 3 1190. Vector jump Bit 4 2060. GB sync. fail. Bit 5 4220. Supply alarm Bit 6 GB breaker close fail. Bit 7 GB breaker open fail. Bit 8 GB breaker position feedback fail. Bit 9 Phase sequence error Bit 10 2070. MB sync. fail. Bit 11 MB breaker close fail. Bit 12 MB breaker open fail. Bit 13 MB breaker position feedback fail. Bit 14 4390. DG volt./frequency fail. Bit 15 Tacho fail.
2008	1		Number of alarms
2008	2		Number of unacknowledged alarms
2009	1	$U_{DG\text{-}Max.}$	Generator max. voltage. Measured in [V]
2009	2	$U_{DG\text{-}Min.}$	Generator min. voltage. Measured in [V]
2009	3	$U_{BBL2\text{-}L3}$	Busbar voltage. Measured in [V]
2009	4	$U_{BBL3\text{-}L1}$	Busbar voltage. Measured in [V]
200A	1	$U_{BB\text{-}Max.}$	Busbar max. voltage. Measured in [V]
200A	2	$U_{BB\text{-}Min.}$	Busbar min. voltage. Measured in [V]
200A	3	$U_{BBL1\text{-}N}$	Busbar voltage. Measured in [V]
200A	4	$U_{BBL2\text{-}N}$	Busbar voltage. Measured in [V]
200A	5	$U_{BBL3\text{-}N}$	Busbar voltage. Measured in [V]
200B	0	S_{GEN}	Generator seeming power. Measured in [kVA]
200C	1	$PHI_{L1\text{-}L2}$	0...359 generator phase angle. Measured in [deg]
200C	2	$PHI_{L2\text{-}L3}$	0...359 generator phase angle. Measured in [deg]
200C	3	$PHI_{L3\text{-}L1}$	0...359 generator phase angle. Measured in [deg]
200C	4	$PHI_{BBL1\text{-}L2}$	0...359 busbar phase angle. Measured in [deg]
200C	5	$PHI_{BBL1\text{-}DGL1}$	0...359 busbar/generator phase angle. Measured in [deg]
200D	1	Analogue 1 M15	4...20mA analogue input
200D	2	Analogue 2 M15	4...20mA analogue input

Index	Sub index	Content	SDO transfer only
200D	3	Analogue 3 M15	4...20mA analogue input
200D	4	Analogue 4 M15	4...20mA analogue input
200E	0	U_{SUPPLY}	Supply voltage. Measured in [V/10]
200F	0	Power regulator set point Write only	0…100% of nominal power Activated in menu 4041
2010	0	PF regulator set point Write only	60…100 stated as PF value/100. The value 100 means PF = 1 Activated in menu 4045
2011	0	Control commands Write only	Bit 0 This bit must be 1 when writing the command word If the bit is 0, the control command is don't care Bit 1 Start Bit 2 GB on Bit 3 GB off Bit 4 Stop Bit 5 MB on Bit 6 MB off Bit 7 Bit 8 Bit 9 Bit 10 Alarm ack. Bit 11 Auto Bit 12 Semi Bit 13 Test Bit 14 Man. All bits are automatically reset in the BGC
2012	0	Frequency regulator set point Write only	-50…50Hz/10. Based on nominal frequency Activated in menu 4042
2013	0	Voltage regulator set point Write only	-100…100%/10 of nominal voltage Activated in menu 4043
2014	0	Reactive power regulator set point Write only	-100…100% of nominal power. A negative value means capacitive reactive power, and a positive value means inductive reactive power. Activated in menu 4044
2015	1		Not used
2015	2		Not used
2016	1	Read only	Control register table_power regulator set point
2016	2	Read only	Control register table_PF regulator set point
2016	3	Read only	Control register table_frequency regulator set point
2016	4	Read only	Control register table_voltage regulator set point
2016	5	Read only	Control register table_reactive power regulator set point
2017	1	Engine CAN value	XDEC 0 - refer to the option H5 manual
2017	2	Engine CAN value	XDEC 1 - refer to the option H5 manual

Index	Sub index	Content	SDO transfer only
2017	3	Engine CAN value	XDEC 2 - refer to the option H5 manual
2017	4	Engine CAN value	XDEC 3 - refer to the option H5 manual
2017	5	Engine CAN value	XDEC 4 - refer to the option H5 manual
2017	6	Engine CAN value	XDEC 5 - refer to the option H5 manual
2017	7	Engine CAN value	XDEC 6 - refer to the option H5 manual
2017	8	Engine CAN value	XDEC 7 - refer to the option H5 manual
2017	9	Engine CAN value	XDEC 8 - refer to the option H5 manual
2017	A	Engine CAN value	XDEC 9 - refer to the option H5 manual
2017	B	Engine CAN value	XDEC 10 - refer to the option H5 manual
2017	C	Engine CAN value	XDEC 11 - refer to the option H5 manual
2017	D	Engine CAN value	XDEC 12 - refer to the option H5 manual
2018	1	RPM	RPM
2018	2	Running hour	DG running hour
2018	3	Counter	GB close counter
2018	4	Counter	MB close counter
2019	0	Mains power	Mains power
2020	1	VDO	Pressure
2020	2	VDO	Temperature
2020	3	VDO	Fuel level

EDS file

The EDS file (Electronic Data Sheets) is used for configuration tools to read the implementation of the CAN open features supported in the multi-line 2 unit. The EDS file contains the object dictionary.

The object dictionary describes all data types, communication objects and application objects implemented in multi-line 2 units regarding CAN open. All objects can be accessed with SDO transfer. The object dictionary is similar to the EDS file, and to see the entire object dictionary please refer to this file.

It can be downloaded from www.deif.com and can be opened in the program Notepad.

5. Parameter list

The parameter setup is done via the PC utility software (USW). In the following, the parameter settings are presented in tables. Default settings can be changed to the relevant settings.

System
4830 External comm. ID
4840 CAN bus Tx error
4850 CAN bus Off error

Settings

4830 External comm. ID

No.	Setting		Min. setting	Max. setting	Factory setting
4830	External comm. ID	Selection display	-	-	-
4831	External comm. ID	ID	1	30	1
4832	External comm. ID	Baud rate	10 kbit/s	125 kbit/s	125 kbit/s

The possible Baud rates are 10, 20, 50, 125 kbit/s.

4840 CAN bus Tx error

No.	Setting		Min. setting	Max. setting	Factory setting
4840	CAN bus Tx error	Selection display	-	-	-
4841	CAN bus Tx error	Delay	0.0 s	100.0 s	5.0 s
4842	CAN bus Tx error	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
4843	CAN bus Tx error	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
4844	CAN bus Tx error	Enable	OFF	ON	OFF

4850 CAN bus Off error

No.	Setting		Min. setting	Max. setting	Factory setting
4850	CAN bus Off error	Selection display	-	-	-
4851	CAN bus Off error	Delay	0.0 s	100.0 s	5.0 s
4852	CAN bus Off error	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
4853	CAN bus Off error	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
4854	CAN bus Off error	Enable	OFF	ON	OFF

Possible comm. errors

- ‘Failed CAN transmit’: E.g. noise disturbances or CAN bus line not connected
- ‘Failed CAN bus OFF’: E.g. noise disturbances or CAN bus line short-circuited