easYgen-3000XT

Option K57 and K58

Legacy CAN and MDEC support

Option K57

From time to time there is the need for replacing older Woodward products in already existing applications by state of the art Woodward controllers.

In case that only single devices are replaced in a multiple unit system, it is essential to have a compatible CAN communication in between old and new units. As there are no third party devices or protocol converters available, we are introducing the K57 option which makes legacy CAN protocols available in the easYgen-3000XT series.

Option K57

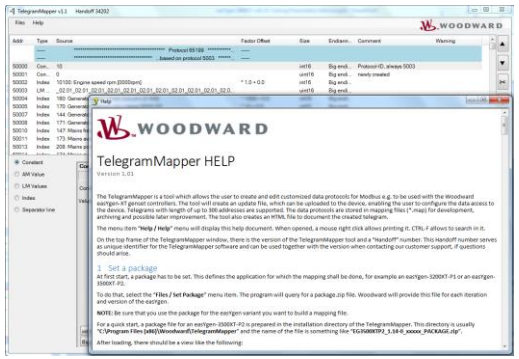
Peripherals

To convert the existing system for operation with an easYGenXT, you only need a few components.

- an easYgenXT with the option K57 or K58

- If applicable, the software tool "Telegram Mapper"

- If necessary, an interface converter "ESEPRO" to translate the CAN protocol to "Profibus"



Option K57

With the K57 software option there will be three legacy CAN protocols available.

- GCP30
- MFR2 408
- MFR3

The GCP30 and the MFR3 setting are emulating the transmission protocol with 23 muxes. For the MFR2 408 there will be 13 muxes available.

For using remote control, we recommend to use a GW4 device (mostly already installed in the application)

Option K57

The legacy protocols are available on CAN#1 and can be configured there

ID	Parameter	CL	Setting range [Default]	Description
16687	**Legacy protocol**	2	**[Off]**	The easYgen is working without any legacy protocol support.
			GCP 30	Protocol emulation for GCP 30 is supported
			MFR2 408	Protocol emulation for MFR2 (telegram 408) is supported
			MFR3	Protocol emulation for MFR3 is supported
13312	**Event time**	2	20 - 65500 ms **[200]**	If any legacy protocol is selected and CAN interface 1 monitoring is on, the monitor will trip after the time configured here plus the delay time of the CAN interface 1 monitor.

Option K57

The transmission telegrams are listed in the option manual (37960)

2.4.1 Protocol GCP 30 (Transmission Telegram)

CAN Mux	CAN word	Size	Index	Description	Unit	Scale
0	1	int				
0	2	int				
0	3	int				
1	1	int				
1	2	int				
1	3	int				
2	1	int				
2	2	int				
2	3	int				

2.4.2 Protocol MFR2 408 (Transmission Telegram)

CAN Mux	CAN word	Size	Index	Description	Unit	Scale
1	1	int16		Telegram type	"408"	
	2	int16	108	Gen. voltage L1-L2	V	* 10^UGN
	3	int16	109	Gen. voltage L2-L3	V	* 10^UGN
2	1	int16	110	Gen. voltage L3-L1	V	* 10^UGN
	2	int16	144	Generator frequency f	Hz	*100
	3	int16	111	Gen. current L1	A	*10^IGNE
3	1	int16	112	Gen. current L2	A	*10^IGNE
	2	int16	113	Gen. current L3	A	*10^IGNE
	3	int16	136	Generator power factor Examples:		

2.4.3 Protocol MFR3 (Transmission protocol)

CAN Mux	CAN word	Size	Index	Description	Unit	Scale
0	1	int16		Protocol number "1300"		
0	2	int16	144	Generator frequency f	Hz	*100
0	3	int16	313	Actual generator real power P	W	* 10^PGNEXPO
1	1	int16	3181	Exponent: PGNEXPO Generator power		Mask FF00h
			3182	Exponent: UGNEXPO Generator voltage		Mask 00FFh
1	2	int16	AM 05.70	Real power set point value mit rampe	W	* 10^PGNEXPO
1	3	int16		internal		
2	1	int16	182	Busbar 1 volt. L1-L2	V	* 10^UGSSEXPO
2	2	int16	118	Mains voltage L1-L2	V	*10^UNTEXPO
2	3	int16		Currently present alarm class		
				internal		Mask 8000h
				internal		Mask 4000h
			10728	Alarm class C/D/E/F		Mask 3000h
			11620	LED "Alarm" flashes		Mask 0C00h
				internal		Mask 0200h
				internal		Mask 0100h
			10725	Alarm class F		Mask 00C0h
			10722-10724	Alarm class C/D/E		Mask 0030h

Option K58

All legacy CAN protocols of option K57 are included in K58

Option K58 enables easYgenXT 3500/P2 controllers to communicate and control MDEC ECUs via CAN bus.

As the MDEC ECU is not using a standard J1939 protocol, Woodward offers the K58 software option to be used for example in retrofit installations where this ECU type is used.

With this software option, there is no need for external third party protocol converters, you can connect the ECU directly to the easYgenXT via CAN bus

Option K58

With the K58 software option there will be the MDEC ECU type available in the CAN interface 2 menu. Following visualization data is available.

- MDEC Coolant temperature [°C]
- MDEC Oil pressure [bar]
- MDEC Oil temperature [°C]
- MDEC Fuel temperature [°C]
- MDEC Engine speed [rpm]
- MDEC Operation hours [h]
- MDEC Error code
- MDEC Feedback speed [rpm]

Option K58

It is also possible to send a speed setpoint from the easYgen to the MDEC. This function can be activated via the MDEC remote control setting.

ID	Parameter	CL	Setting range [Default]	Description
9839	**MDEC Remote control**	2	**[Off]**	easYgen does not send a speed setpoint.
			On	easYgen sends a setpoint for speed biasing

Option K58

The MDEC settings are available in the CAN interface 2 menu and can be configured there

ID	Parameter	CL	Setting range [Default]	Description
9838	**MDEC**	2	**[Off]**	The easYgen is working without any MDEC support.
			V302	MDEC protocol V302 is supported
			V303	MDEC protocol V303 is supported
			V304	MDEC protocol V304 is supported
9839	**MDEC Remote control**	2	**[Off]**	easYgen does not send a speed setpoint.
			On	easYgen sends a setpoint for speed biasing

Option K58

The MDEC settings are available in the CAN interface 2 menu and can be configured there

ID	Parameter	CL	Setting range [Default]	Description
9838	**MDEC**	2	**[Off]**	The easYgen is working without any MDEC support.
			V302	MDEC protocol V302 is supported
			V303	MDEC protocol V303 is supported
			V304	MDEC protocol V304 is supported
9839	**MDEC Remote control**	2	**[Off]**	easYgen does not send a speed setpoint.
			On	easYgen sends a setpoint for speed biasing

ID	Parameter	CL	Setting range [Default]	Description
15155	**Engine speed source**	2	**[Internal]**	The internal MPU input is used as engine speed source.
			ECU/J1939	If MDEC protocol is activated, MDEC Engine speed will be used as speed source. Otherwise ECU/J1939 data will be used.
15154	**Operation hours source**	2	**[Internal]**	The operation hours are counted internal from the easYgen.
			ECU/J1939	If MDEC protocol is activated, MDEC operation hours will be used as source. Otherwise ECU/ J1939 data will be used.

How can I get option K57 and K58

K57* and K58 are available as flash file with a Woodward part number which can be loaded into the easYgenXT controller.

For option K57* you need an easYgen 3100/3200XT/P1 device and for K58 an easYgen 3400/3500/P2.

If you want to update one of these devices to the described option, you need to forward the serial number to your Woodward sales contact. We then will create a flashfile which can be used for this unit only (software is fixed to the serial number).

You will receive the flashfile with a flash instruction to update your device to the new software option.

*the K57 option is also available as a complete unit easYgen 3100 XT/P1 K57 under item number 8440-2308

Possible combinations for Software option K57 and K58

easYgenXT	K57 (legacy CAN) P/N 10-030-825	K58 (legacy CAN&MDEC) P/N 10-030-826
easYgen-3100XT/P1 P/N 8440-2081	X	
easYgen-3200XT/P1 P/N 8440-2082	X	
easYgen-3200XT/P1-LT P/N 8440-2023	X	
easYgen-3400XT/P2 P/N 8440-2087		X
easYgen-3500XT/P2 P/N 8440-2088		X
easYgen-3500XT/P2-LT P/N 8440-2089		X

Helpful documents and links

https://easygen.org/legacy-product-replacement/

https://wss.woodward.com/manuals/PGC/Forms/AllItems.aspx?View=%7BD1BA787B%2D2B63%2D47CB%2D92EA%2D0F523D1EFFB4%7D

Additional accessories and links

ESEPRO 8445-1046 got a new Revision B supporting now old MFR2's ProfibusDP Protocols

enabling easYgen-3000XT controls to old Profibus PLCs without making any changes in upper PLC

Replace old MFR2 ProfibusDP without touching PLC

MFR2 integral ProfibusDP interface (Option Su/Sb)

8445-1046 ESEPRO
REV B or higher

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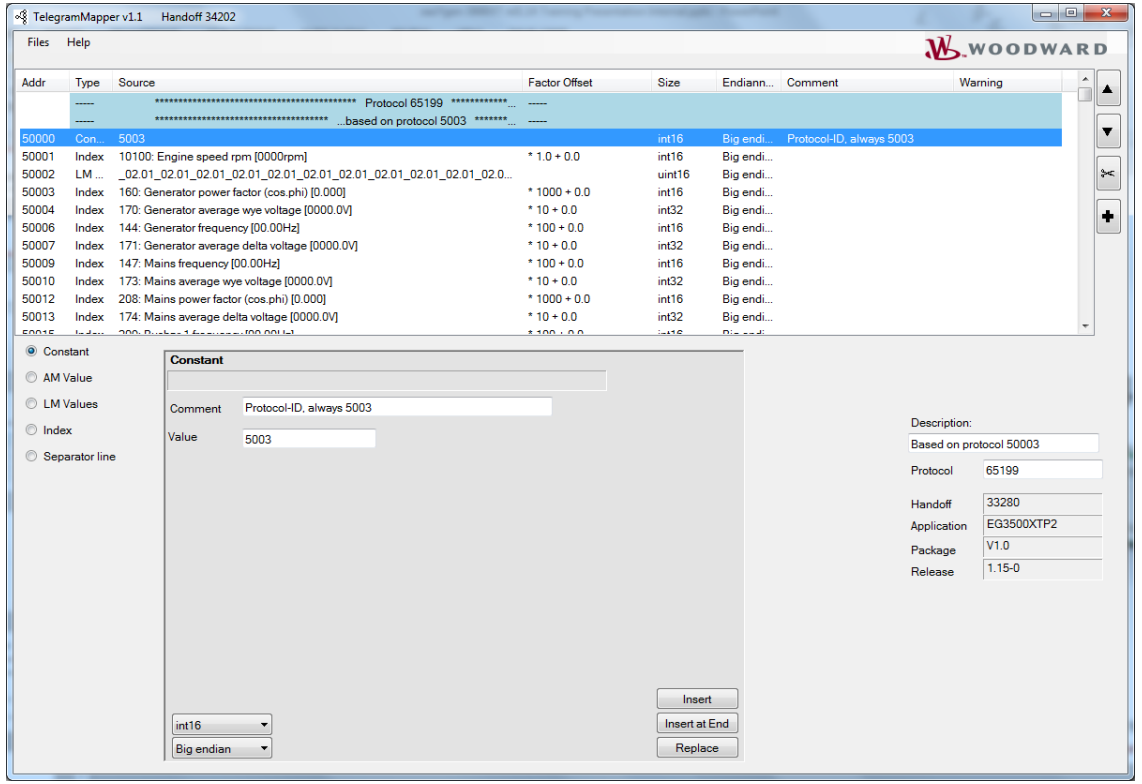
Data Telegram Mapper

It is possible that a user creates customized ModBus protocols for the easYgen-XT family

- Provides flexibility to PLC programmer,
  - — to define and size the content of the protocol to exact application needs and minimize communication delay
  - — to manage several protocols at once
  - — to apply simple scaling and offset to the data



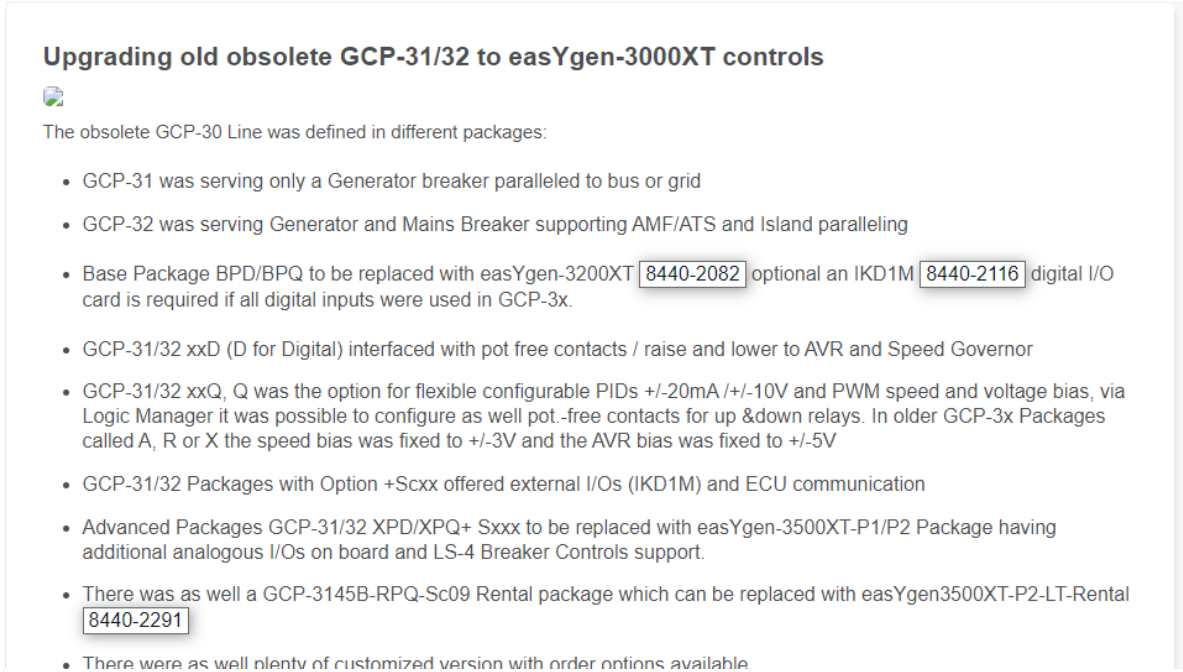
Note: Modbus address begins at 50000

Links for telegram mapper

https://wss.woodward.com/manuals/PGC/easYgen-3000XT_series/SW_Tools/TelegramMapper

https://www.youtube.com/watch?v=c02_06CReyw&t=25s

Additional accessories and links



Upgrading old obsolete GCP-31/32 to easYgen-3000XT controls

The obsolete GCP-30 Line was defined in different packages:

- GCP-31 was serving only a Generator breaker paralleled to bus or grid
- GCP-32 was serving Generator and Mains Breaker supporting AMF/ATS and Island paralleling
- Base Package BPD/BPQ to be replaced with easYgen-3200XT 8440-2082 optional an IKD1M 8440-2116 digital I/O card is required if all digital inputs were used in GCP-3x.
- GCP-31/32 xxD (D for Digital) interfaced with pot free contacts / raise and lower to AVR and Speed Governor
- GCP-31/32 xxQ, Q was the option for flexible configurable PIDs +/-20mA /+/-10V and PWM speed and voltage bias, via Logic Manager it was possible to configure as well pot.-free contacts for up &down relays. In older GCP-3x Packages called A, R or X the speed bias was fixed to +/-3V and the AVR bias was fixed to +/-5V
- GCP-31/32 Packages with Option +Scxx offered external I/Os (IKD1M) and ECU communication
- Advanced Packages GCP-31/32 XPD/XPQ+ Sxxx to be replaced with easYgen-3500XT-P1/P2 Package having additional analogous I/Os on board and LS-4 Breaker Controls support.
- There was as well a GCP-3145B-RPQ-Sc09 Rental package which can be replaced with easYgen3500XT-P2-LT-Rental 8440-2291
- There were as well plenty of customized version with order options available

https://support.easygen.org/en-US/kb/articles/what-to-consider-if-i-want-to-upgrade-obsolete-gcp-3x-controls-to-easygen-3000xt-controls

Project in Catania Italy By Turner MWB

Before

Project in Catania Italy By Turner MWB

After

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