GS33900000800A

Dupline® Master channel generator



Benefits

- Generates the Dupline® carrier signal
- GS33900000800A must be used together with GS33910060800, up to 7 GS33900000800A can be connected to one Profinet gateway GS33910060800
- Supports Digital in/out, Analink in/out, Mux BCD in/out, 8 bit in/out and Dupline® safe in
- High Dupline® current output (450mA)
- 2-DIN housing

Description

The Master channel generator GS33900000800A provides the channel generator output drive for one Dupline® network.
Up to 7 Master Channel Generators can be connected to one profinet gateway GS33910060 800
By using the dip switches on the front, the user can select ID addresses and change between the different modes explained below in the datasheet.
The GS33900000800A supports standard Dupline® addresses and can operate with analink, mux BCD Analog, Dupline® Safe, 8 bit and has extended digital output mode for profinet.

Applications

Master channel generator for standard Dupline® applications, Dupline® Safe and Profinet

Main functions

- Module that generates 128 Dupline® channels and power to bus modules
- Extended digital output mode for Profinet

Features

Power Supply

Power supply	Overvoltage cat. II (IEC 60664-1, par. 4.3.3.2); Rated operational voltage: 15 to 24 V DC ± 20% *Note: no galvanic separation between power supply A1, A2 and Dupline bus. Use always separate power supplies for each GS33900000800A.*
Operational voltage range	10 to 30 V DC (ripple included)
Rated operational power	6.5 W
Protection for reverse polarity	Yes
Connection	A1 (+) and A2 (-)
Power-ON delay	4 s
Power-OFF delay	1 s

Dupline® specifications

Dupline® voltage rated	8.2 V
Maximum Dupline® voltage	10 V
Min. Dupline® peak voltage	4.5 V
Maximum Dupline® current	450 mA @ 25°C
	350 mA @ 40°C
Terminal	D+ and D-

Note: The Dupline® bus is located on the upper connector and also on the local bus connector on the right side of the module.

LEDs indication

Green LED	Power status	ON: supply ON OFF: supply OFF
Yellow LED	Dupline® LED	ON: the Dupline® bus is working properly Flashing: there is a fault on the Dupline® bus OFF: the Dupline® bus is OFF or not connected
	BUS LED	OFF: No communication is present on the HS bus ON: Communication OK on HS bus Flashing: Communication error on HS bus

Environmental

Ambient temperature	-20°... +50°C (-4°... +122°F)	Operating
	-50° ... +85°C (-58° ... +185°F)	Storage
Degree of protection	Front	IP50
	Screw terminal	IP20
Pollution degree	2	IEC 60664-1, par. 4.6.2
Installation category	III	
Humidity (not condensing)	20 ... 80% RH	

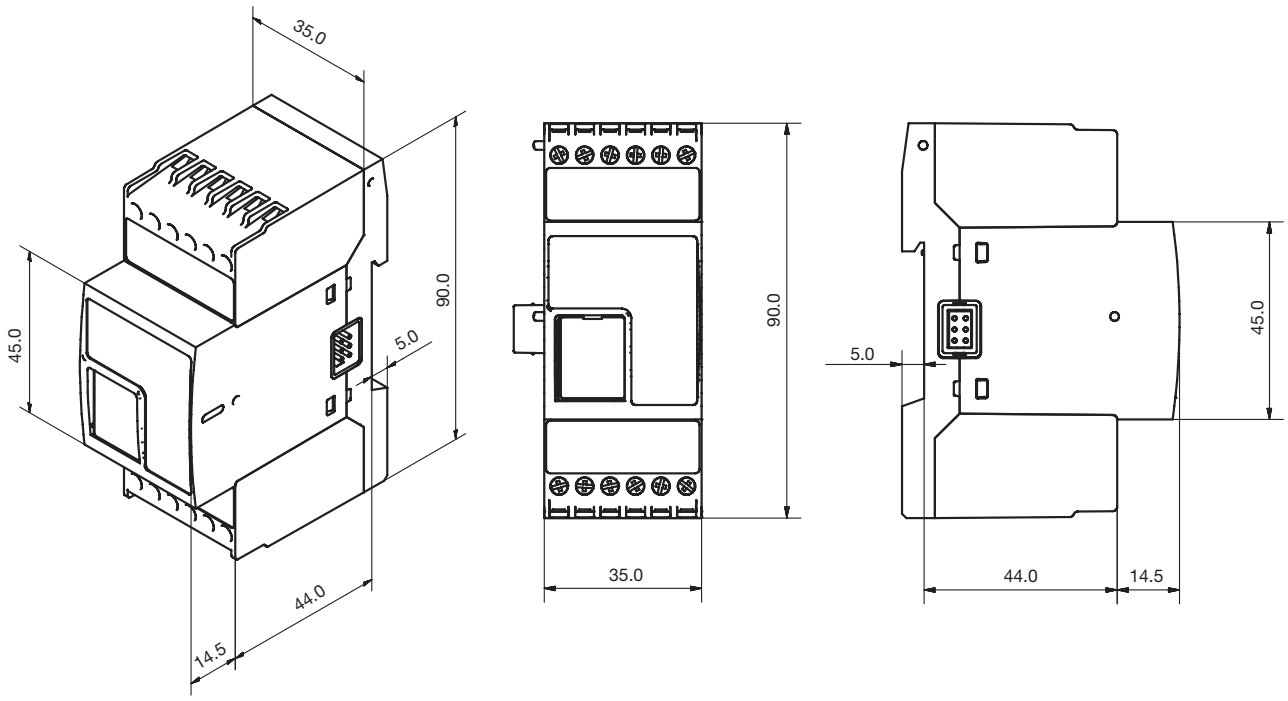
EMC

Immunity	EN61000-6-2
Emission	EN61000-6-3

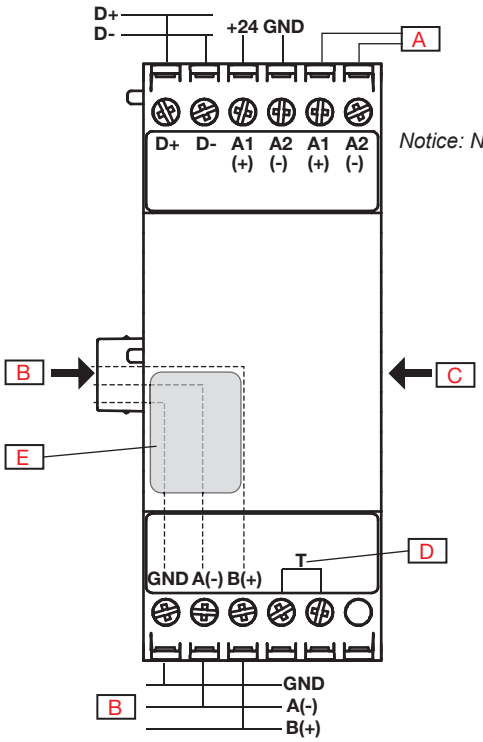
Mechanics

Housing

Dimensions (HxWxD)	90 x 35 x 58.5 mm
Material	Noryl
Colour	Light grey
Weight	150 g



Wiring



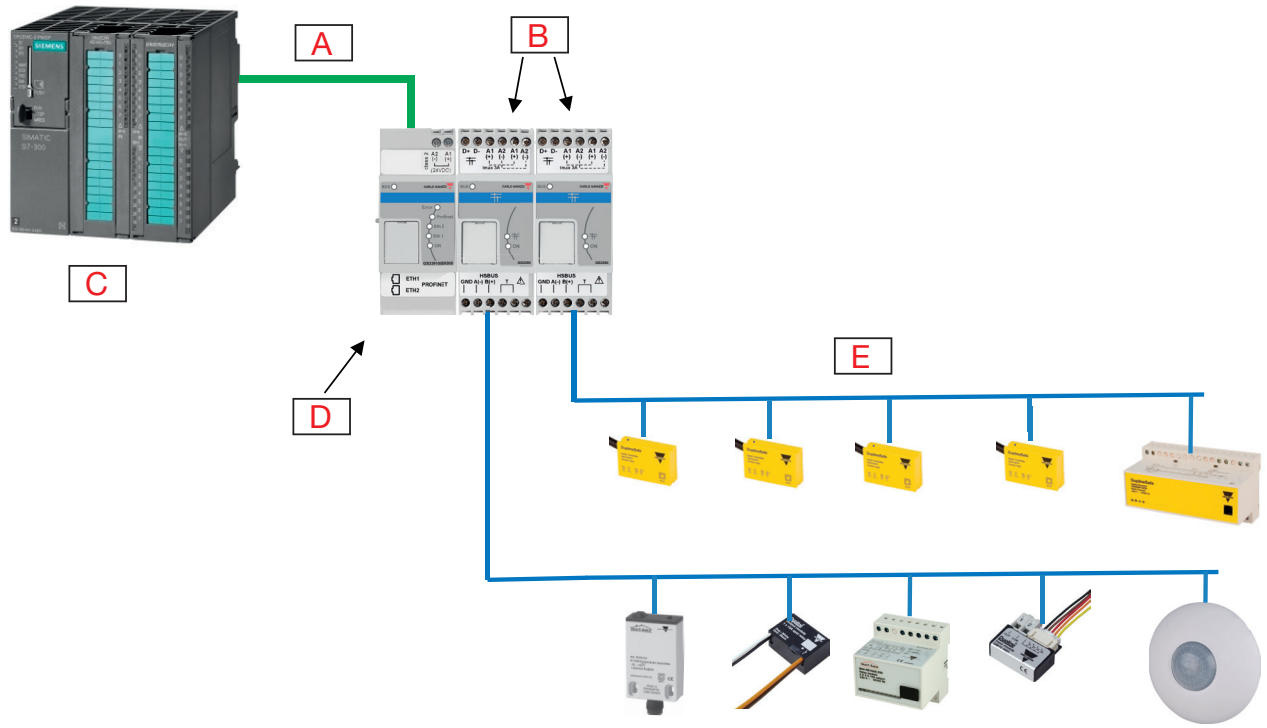
Notice: NO insultation between D- and A2 terminals.

A	Supply for other modules	**D**	These two terminals must be short-circuited in the last module of the network
B	HS Bus	**E**	DIP-Switch
C	Dupline® bus		

Connection

Terminal	11-screw type
Cable cross-section area	Max. 1.5 mm²
Tightening torque	0.4 Nm / 0.8 Nm

Example of an installation with 2 MCG networks



A	Profinet	**D**	Profinet gateway (Ethernet module)
B	MCG1+2 (up to 7 connected to one Profinet gateway) *Notice: NO insultation between D- and A2 terminals.*	**E**	Dupline® & Dupline®Safe
C	Siemens S7 PLC		

Compatibility and conformity

Approvals

Approvals	CE cULus LISTED UL60950

UL notes:
Max ambient temperature: 40°C
Equipment must be supplied by a separately certified NEC class 2 (LPS) power unit

Mode of operation

Mode of operation

The Master channel generator GS33900000800A provides the channel generator output drive for one Dupline® network.
All the devices can be connected via side plus connectors if they are in the same cabinet, or via screw terminals if they are mounted in different cabinets.
The Master channel generator works as a standard channel generator but has the option for different modes that makes the generator capable of working with Analink, mux BCD, Dupline® safe and a extended digital output mode for Profinet.
6 x Dipswitch : Sw. 1-3 set the device number from 1 to 7. This means that is it possible to connect up to 7 units of GS33900000800A to the Profinet gateway GS33910060800. Sw. 4 and 5 works as respectiverly "Monostable" and "mux BCD". See tables.
The sw.6 has the function as "Extended digital output mode". When enabled, Analink outputs ranging from M1 to P8 are switched to simple Digital Output channels

Dupline® Input and Output Data.

To ease up the Profinet Master configuration, the GSDML-V2.31-xxx.xml file is to be used. This file describes to the Master which I/O data the gateway supports. All I/O data are selectable through so-called modules, each described with its particular function.
Digital Input, Digital output, Analink, Mux BCD, Safety input etc. Through this, the individual configuration of the Gateway is quite simplified, as the user only has to select which I/O modules to use. The supported modules may be selected in any order and any combination.
The GS33910060800 passive gateway corresponding to 128 channels of input and 96 channels of output channels. Furthermore, 32 Analink channels, 32 Mux analog input channels and 32 Mux analog output channels. The GS33910060800 supports reading of Dupline®–safe signals. To use the GS33900000800A and Dupline® Safe, it is mandatory to set on the GS38300143230 the synch channel to “A5”. This requires 2 bits of information per safety- signal. Thus, the information must be read like this:

00	Safe valid	Closed
10	Unsafe Valid	Open
***11**	Unsafe	Invalid condition

* 11 - is a situation where the system is in “Unsafe” mode, but either loses sync signal, bus signal disconnect or short circuit, etc
The total number of Dupline® Safe devices that can be connected to one GS33900000800A is 61.
All modules consist of 16 bytes of data, and the tables below describe the content and the relations to the Dupline® data.

Byte 0.. 0Fh Analog input module, multiplexed

Byte address	Dupline® Groups	Multiplex address
0 - 1 (Hi,Lo)	CD	0
2 - 3	CD	1
4 - 5	CD	2
6 - 7	-	-
A - B	-	-
C - D	CD	6
1E - 1F	CD	A

The multiplexed analog values are represented as16-bit "sign and magnitude" (2 Bytes: Hi,Lo)
The most significant bit defines the sign (0:+, 1:-) while the remaining 15 bits define the magnitude (0..32768).

Byte 0.. 0Fh Analog Output module, multiplexed selected

Byte address	Dupline® Groups	Multiplex address
0 - 1 (Hi,Lo)	IJ -- KL	0
2 - 3	IJ -- KL	1
4 - 5	IJ -- KL	2
6 - 7	-	-
A - B	-	-
C - D	IJ -- KL	6
E - F	IJ -- KL	7

The multiplexed analog values are represented as 16-bit "sign and magnitude" (2 Bytes: Hi,Lo)
The most significant bit defines the sign (0:+, 1:-) while the remaining 15 bits define the magnitude (0..32768).

Byte 0.. 0Fh Analog input module, AnaLink selected

Byte address	Dupline® channels
0	M1
1	M2
2	M3
-	-
-	-
16	O7
1F	P8

The AnaLink analog values are represented as 8 bit binary value ranging from 0 to 255.

Byte 0.. 0Fh Digital input module

Byte address	Dupline® Groups	Bit	Channel Number
0	A	7	A1
0	A	6	A2
0	A	5	A3
0	-	-	-
0	A	0	A8
1	B	7	B1
2	C	6	C2
-	-	-	-
E	O	1	O7
F	P	0	P8

Byte 0.. 0Fh Digital output module

Byte address	Dupline® Groups	Bit	Channel Number
1	B	7	B1
1	B	6	B2
1	B	5	B3
1	B	-	-
1	B	0	B8
2	C	7	C1
3	D	6	D2
-	-	-	-
A	K	1	K7
B	L	0	L8

Byte 0.. 0Fh Safety input module

Byte address	Dupline® Channel	Safe Bits
00	x	7 - 6
	x	5 - 4
	A5 - 6	3 - 2
	A7 - 8	1 - 0
01	B1 - 2	7 - 6
	B3 - 4	5 - 4
	B5 - 6	3 - 2
	B7 - 8	1 - 0
	-	-
	-	-
0F	P1 - 2	7 - 6
	P3 - 4	5 - 4
	P5 - 6	3 - 2
	P7 - 8	1 - 0

Each safe input consists of 2 Safe Bits.
The 2 bits are to be interpreted like this:

00: Safe valid - Closed
10: Unsafe Valid - Open
11: Unsafe - Invalid condition

The 2 safe bits can be read as follows:
Example:
Safe bits: 7.6.5.4.3.2.1.0
Bit example: 0 0 1 1 0 1 1 0

Read “Byte adress” “01” and Dupline® channel B7-8
Now read Safe bits on place 1.0 to bit example 1 0
This means that the Dupline® channel is : SAFE OFF

DIP-Switch settings

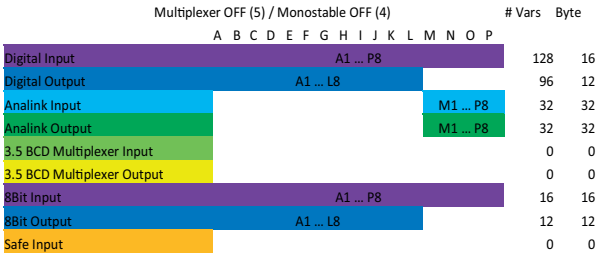
Switch 1-2-3	Device number
Switch 4	Monostable / Split I/O mode
Switch 5	Mux Analogue mode
Switch 6	Extended digital output mode[1)]

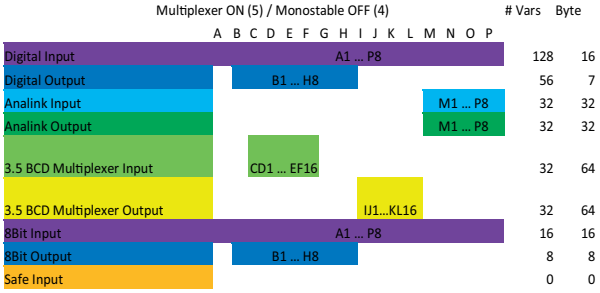
[1)]The DIP switch enables/disable the possibility to have the Analink Output Channels to be used as Digital Outputs

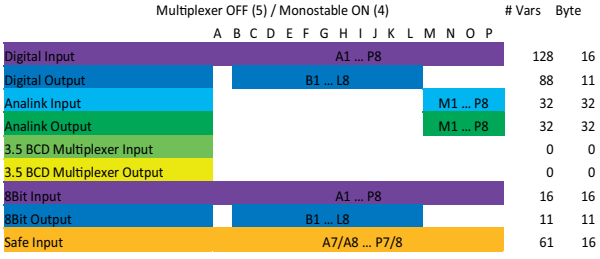
DIP-Switch 1-3 settings

Address	1	2	3	4	5	6	7	Invalid
Switch 1	OFF	OFF	OFF	ON	ON	ON	ON	OFF
Switch 2	OFF	ON	ON	OFF	OFF	ON	ON	OFF
Switch 3	ON	OFF	ON	OFF	ON	OFF	ON	OFF

DIP-Switch 4-6 settings







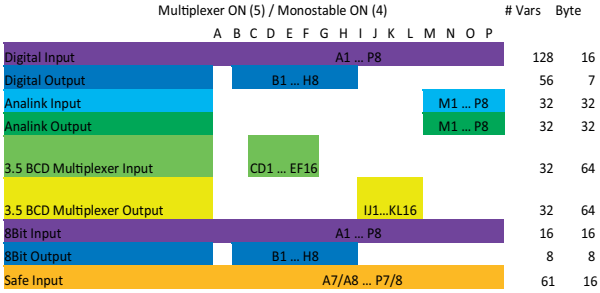
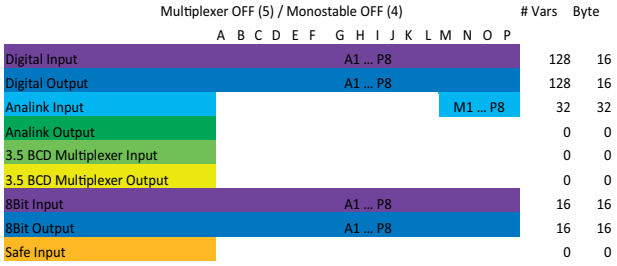
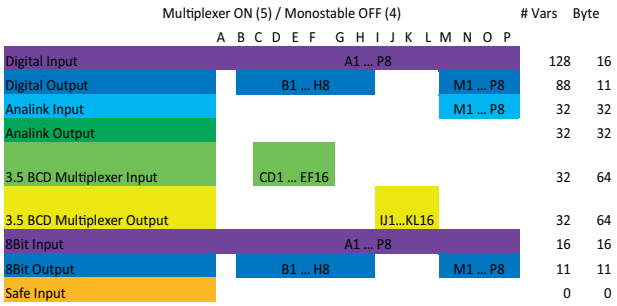
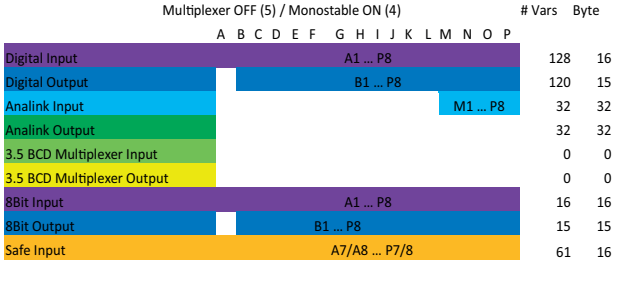


Fig. 1 *Dip-switch 6 disabled*







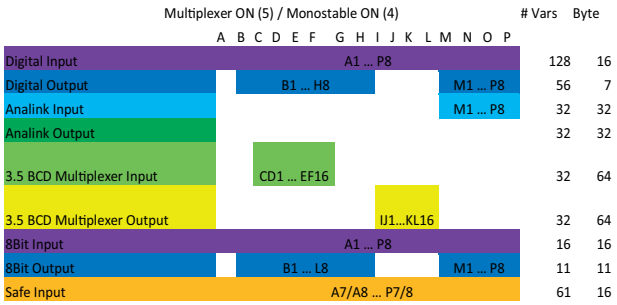


Fig. 2 *Dip-switch 6 enabled*

References

Product selection key

GS33900000800A

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