Dupline® Profibus-DP Gateway Passive Type G 3891 0120

- Passive gateway without channel generator
- PROFIBUS-DP slave according to EN 50 170
- Certified by the PNO
- Can be connected at any point in a Dupline® network
- Several gateways can be connected to the same Dupline® network
- PROFIBUS-DP communication speed of up to 12 MBaud
- Read/control 128 Dupline inputs/outputs through PROFIBUS-DP
- Multiplexed analog signals can be read via the PROFIBUS-DP network
- For mounting on DIN-rail (EN 50 022)
- LED indicators for supply, Dupline® carrier and fault
- AC power supply

Product Description

Dupline® Gateway with the function of a PROFIBUS-DP slave. This means that the Dupline® I/O's (incl. multiplexed analog signals) can be read/controlled by PROFIBUS-DP masters (PLC's, PC interface cards, etc. from various suppliers).

Several Dupline® gateways can be connected to the same Dupline® network. The unit is certified by PNO (Profibus Nutzer Organisation) which ensures compatibility and interoperability with other PNO-certified products.

Ordering Key

G 3891 0120 230

Type: Dupline®
Type no.
Supply

Type Selection

Supply	Ordering no.
115/230 VAC	**G 3891 0120 230**

Input/Output Specifications

PROFIBUS-DP		RS 485
		9-pole female SUB-D
Pin assignment	A	Pin 8
	B	Pin 3
	RTS	Pin 4
	+5V	Pin 6
	GND	Pin 5
Baudrate		Auto detection
Cable length		100 m @ 12 MBaud
		200 m @ 1.5 MBaud
		1200 m @ 93.75 kBaud
Up-date time (128 digital I/O)		Typ. 200 μs at 12 MBaud
		Typ. 1.6 ms at 1.5 MBaud
Dielectric voltage		
PROFIBUS-DP Dupline®		≥ 4 kVAC (rms)
PROFIBUS-DP ID-no.		6590
GSD-file		G38_120.gsd

Adjustments

2 x 10 pos. rotary switch	PROFIBUS Slave Address Range 02 to 99
1 x 16 pos. rotary switch	Not used
DIP-switch 1	Not used
DIP-switch 2	Version selection
DIP-switch 3	Not used
DIP-switch 4	Not used

Approvals

PROFIBUS operability	PNO (Profibus Nutzer Organisation)

Conformity

CE	EMC Industrial Environment

General Specifications

Power ON delay		< 2.5 s
Indication for		
Supply ON		LED, green
Dupline® carrier		LED, yellow
Fault		LED, red
Environment		
Degree of protection		IP 20
Pollution degree		3 (IEC 60664)
Operating temperature		0° to +50°C (+32° to +122°F)
Storage temperature		-20° to +85°C (-4° to +185°F)
Humidity (non-condensing)		20 to 80% RH
Mechanical resistance		
Shock		15 G (11 ms)
Vibration		2 G (6 to 55 Hz)
Dimensions		H8-housing
Weight		540 g
LED Functions		
Red		
	On	DP-Comm fail
	Flash	DP- Device switch in non-legal position (0,1 or 2)
	Off	DP comm Ok
Yellow		
	On	Dupline carrier Ok
	Off	Dupline internal Powerfail
	Flashing	Dupline Short
Green		
	ON	Supply is on
	OFF	No voltage on the supply terminals

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Supply Specifications

Power supply	Overvoltage cat. III (IEC 60664)
Rated operational voltage	
through term. 21, 22, 23 & 24	See wiring diagram
230	230 VAC ± 15% (IEC 60038)
115	115 VAC ± 15% (IEC 60038)
Frequency	45 to 65 Hz
Rated operational power	11 VA
Rated impulse withstand	
voltage 230	4 kV
115	2.5 kV
Dielectric voltage	
Supply - Dupline®	≥ 4 kVAC (rms)
Supply - RS 485	≥ 4 kVAC (rms)

Wiring Diagrams

Power supply 230 VAC   Power supply 115 VAC
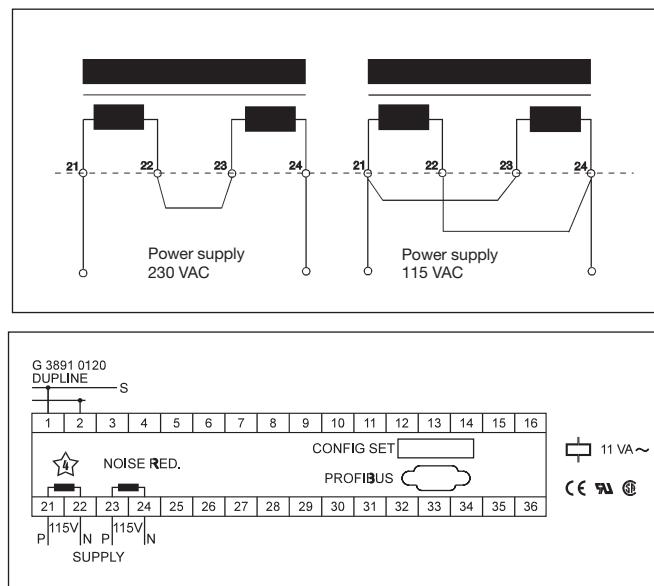
Mode of Operation

The Dupline PROFIBUS-DP Gateway operates as a PROFIBUS-DP slave according to EN 50 170. This means that the 128 Dupline® I/O's (incl. multi-plexed analog signals) can be read/controlled by PROFIBUS-DP masters like PLC's and PC interface-cards from many different suppliers. Since the G38910120 is a passive gateway without channel generator function, it is possible to connect several units to the same Dupline® network. The Dupline® PROFIBUS-DP Gateway is approved by the PNO (Profibus Nutzer Organisation) that ensures compatibility with other PNO-certified products.

Configuration switches
The unit is equipped with the following switches:
1 x 16-position rotary switch- not used in the G38910120.
2 x 10-position rotary switch for selection of the **PROFIBUS-DP Slave Address** in the range 02..99. (00..01 are reserved). Each module connected to PROFIBUS-DP must have a unique slave address which enables the PROFIBUS-DP Master to access the modules individually.

4 x DIPswitches - not used in the G38910120.

1 x DIP-switch for version selection
Normally, the version selection is supposed to be in the OFF position, especially when the Gateway is used in new installations and configured with the G38_120.GSD file.
In replacements or expansion of existing installations, this switch may be switched on, in order to make set the Gateway to operate towards the previous GSD version. (Mod-6590.GSD)

Dupline® Input Data
To ease up the **Profibus Master configuration**, the **G38_120.gsd** 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, Analog 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 G38910120 passive gateway supports one Digital input module, and one Digital output module, corresponding to the 128 channels of input and output data. Furthermore, the G38910120 automatically detects if Multiplexed analog data are present on the Dupline. Thus up to 112 Analog values may be read, and this is done through additional 14 Input modules, named "AIn (Mux:CD,0-7)", "AIn (Mux:CD,8-F)" ... "AIn (Mux:OP,8-F)".

All modules consist of 16 bytes of data, and the tables below describe the content and the relations to the Dupline data.

If the Dupline® signal is missing or faulty, the gateway will set the input status of all channels to OFF.

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Byte *0.. 0Fh* Digital input module

Byte address	Dupline Group	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* 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
E,F	CD	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* Digital output module

Byte address	Dupline Group	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

Pin Assignment

Pin	Signal
3	B
4	RTS
5	GND
6	+5 V
8	A
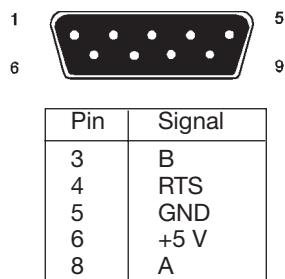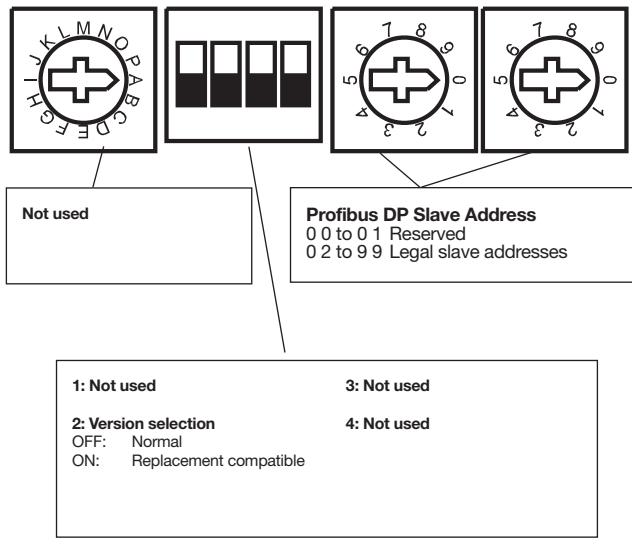
Dimensions (mm)

H8-housing

Switch Settings

Not used

Profibus DP Slave Address
0 0 to 0 1 Reserved
0 2 to 9 9 Legal slave addresses

1: Not used

2: Version selection
OFF: Normal
ON: Replacement compatible

3: Not used

4: Not used

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