

Dupline® Profibus-DP Gateway Type G 3891 0020

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- Built-in Dupline® channel generator
- PROFIBUS-DP slave according to EN 50 170
- Certified by the PNO
- PROFIBUS-DP communication speed of up to 12 MBaud
- Read/control 128 Dupline® inputs/outputs through PROFIBUS-DP
- Split-I/O mode selectable (128 inputs and 128 outputs)
- Signals from AnaLink sensors available on the DP- network
- For mounting on DIN-rail (EN 50 022)
- LED indicators for supply, Dupline® carrier and fault
- AC power supply

Product Description

Dupline® Channel Generator with the function of a PROFIBUS-DP slave. This means that the 128 Dupline® I/O's (incl. AnaLink) 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 PROFIBUS-DP network. The unit is certified by PNO (Profibus Nutzer Organisation) which ensures compatibility and interoperability with other PNO-certified products.

Ordering Key

G 3891 0020 230

Type: Dupline® _____
Type no. _____
Supply _____

Type Selection

Supply	Ordering no.
115/230 VAC	G 3891 0020 230

Input/Output Specifications

PROFIBUS-DP

Pin assignment

A
B
RTS
+5V
GND

Baudrate
Cable length

Up-date time (128 digital I/O)

Dielectric voltage
PROFIBUS-DP Dupline®
PROFIBUS-DP ID-no.
GSD-file

Dupline

Output voltage
Output current
Short-circuit protection
Output impedance
Sequence time
8 digital I/O
128 digital I/O
AnaLink value update time
8 signals
128 signals

RS 485
9-pole female SUB-D
Pin 8
Pin 3
Pin 4
Pin 6
Pin 5
Auto detection
100 m @ 12 MBaud
200 m @ 1.5 MBaud
1200 m @ 93.75 kBaud
Typ. 200 µs at 12 MBaud
Typ. 1.6 ms at 1.5 MBaud

≥ 4 kVAC (rms)
6590
G38_020.gsd

8.2 V
≤ 100 mA
Yes
≤ 15 Ω
15.2 ms
132.3 ms

3.9 s
33.8 s

Adjustments

2 x 10 pos. rotary switch
1 x 16 pos. rotary switch No.
DIP-switch 1
DIP-switch 2
DIP-switch 3
DIP-switch 4

Approvals

PROFIBUS operability

Conformity

CE

LED Functions

Red

On
Flash
Off

DP-Comm fail
DP- Deviceswitch in non-legal position (0,1 or 2)
DP comm ok

Yellow

On
Off
Flashing

Dupline carrier Ok
Dupline internal Powerfail
Dupline Short

Green

ON
OFF

Supply is on
Supply not supplied to the supply terminals, which supplies the power to the internal power supply, which again drives the supply for the green supply led.

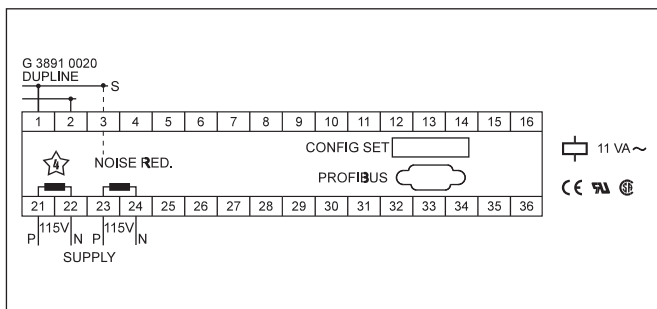
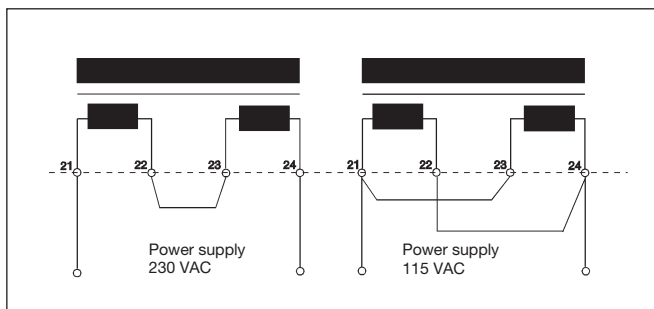
General Specifications

Power ON delay	< 2.5 s until start of Dupline carrier. < 40 s until correct reading of AnaLink values
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)
Terminals	Screwterminals
Tightening torque	0.8 Nm
Dimensions	H8-housing
Weight	540 g

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	4 kV
230	2.5 kV
115	
Dielectric voltage	
Supply - Dupline®	≥ 4 kVAC (rms)
Supply - RS 485	≥ 4 kVAC (rms)

Wiring Diagrams



Mode of Operation

The Dupline® PROFIBUS-DP Gateway is a Dupline channel generator with the function of a PROFIBUS-DP slave according to EN 50 170. This means that the 128 Dupline® I/O's (incl. AnaLink) can be read/ controlled by PROFIBUS-DP masters like PLC's and PC interface-cards from many different suppliers. Several Dupline® gateways can be connected to the same PROFIBUS-DP network and operate together with other PROFIBUS-DP modules like operatorpanels, MMI's, frequency inverters, I/O-modules etc.

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 configuration switches (see also Switch settings):

1 x 16-position rotary-switch for selecting the **Number of Dupline® channels** in the range 8..128 (in steps of 8). The selected letter indicates the last channel group available on Dupline®. If e.g. H is selected, the 64 channels in groups A..H will be available.

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.

1 x DIP-switch for selection of **Dupline® Operation Mode**. In "Normal" mode, Dupline® operates as a peer-to-peer system where the channel generator automatically establishes a connection between Dupline®-inputs and Dupline®-outputs which are coded to the same Dupline®-address. If e.g. an input

coded for B5 is activated, the output(s) coded for B5 will also be activated.

Consequently, a Dupline®-output can either be activated through the output-data received on PROFIBUS-DP or by an active Dupline® input coded for the same Dupline®-address. In "Split I/O" mode, the Dupline®-inputs and Dupline®-outputs are treated independently by the channel generator. If e.g. an input coded for B5 is activated, the Gateway will make the information available on PROFIBUS-DP (like in normal mode), but it will not automatically activate the Dupline®-output(s) coded to

Mode of Operation (cont.)

B5. The Dupline®-outputs are controlled exclusively through the output data received on PROFIBUS-DP.

In this mode, up to 128 Dupline® inputs and 128 Dupline outputs are available, since an input and an output coded to the same Dupline®-address can operate independently.

1 x DIP-switch for selection of **Analog Protocol** to either AnaLink (8-bit format) or multiplex (16-bit format). The Gateway will only transfer analog values from modules using the selected protocol. If multiplex is selected, the Gateway will automatically perform the required multiplexing on channels A1-A4. Because of this, these 4

channels are not available as outputs when the multiplex protocol is selected.

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_20.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_020.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 G38910020 gateway supports one Digital input module, and One Digital output module, corresponding to the 128 channels of input

and output data. Furthermore, when Multiplexed analog data are selected on the Dupline, up to 112 Analog values may be read, and this is done through additional 14 Input modules named "Aln". (Mux:CD,0-7/Alink:AB)", "Aln (Mux:CD,8-F/Alink:CD)"... "Aln (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 short-circuited, the gateway will set the input status of all channels to OFF, and issue a diagnostics information to the Profibus master.

Byte 0.. 0F_h 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.. 0F_h 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

Byte 0.. 0F_h Analog input module, multiplexed

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

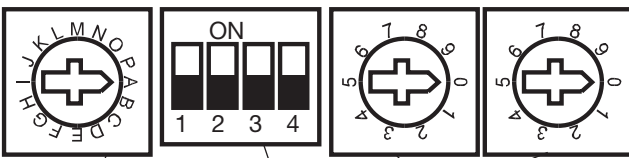
The multiples analog values are represented as 16-bit "sign and magnitude" (2 Bytes: Hi,Lo)
The most significant bit defines the sign (0:+, 1:-) while the remaining 15 bits define the magnitude (0..32768).

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

Byte address	Dupline Groups
0	A1
1	A2
3	A3
-	-
-	-
E	B7
F	C8

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

Switch Settings



Number of Dupline Channels

A: Group A 8 channels
 B: Groups A..B 16 channels
 P: Groups A..P 128 channels

Profibus DP Slave Address

0 0 to 0 1 Reserved
 0 2 to 9 9 Legal slave addresses


1: Dupline Operation Mode
 OFF: Normal (Peer-to-Peer)
 ON: Split I/O mode

2: Version selection
 OFF: Normal
 ON: Replacement compatible

3: Analog protocol
 OFF: AnaLink
 ON: Multiplex

4: Not used

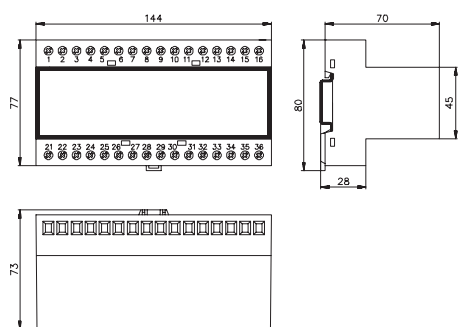
Pin Assignment



Pin	Signal
3	B
4	RTS
5	GND
6	+5 V
8	A

Dimensions (mm)

H8-housing



Top view dimensions: 144 mm (width), 77 mm (height). Pin positions 1-16 and 21-36 are marked.

Side view dimensions: 70 mm (total width), 80 mm (height), 45 mm (lower section height), 28 mm (lower section width).

Front view dimensions: 73 mm (height).