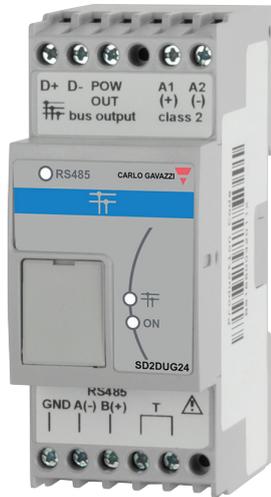


# SD2DUG24



## Dupline® bus generator



### Benefits

- **Integrated system.** Dupline® is the brand name for Carlo Gavazzi's 2-wire and 3-wire bus system.
- **Cost reduction.** The use of a bus system is a proven way to reduce installation costs – especially when the distance between I/O points are extensive.
- **Fast and easy installation.** Completely free topology, no special cable required, no screen or twist. It can go for 10 km and even further with repeaters.
- **High noise immunity.**
- **Scalability.** New modules can be progressively integrated into the system according to the application needs.
- **Modularity.** The system is composed by many modules, powered by the bus, so that each installation can be precisely and easily sized.

### Description

SD2DUG24 is designed as a cost-effective Plug & Play solution for interfacing Dupline® I/O's to control systems. It performs three functions: Dupline® channel generator, power supply synchronization (enables 3-wire system with supply) and Modbus RS485 interface.

It is fully programmable via software and the software is free downloadable from Carlo Gavazzi website.

It substitutes the G34900000xxx and G34960005xxx modules.

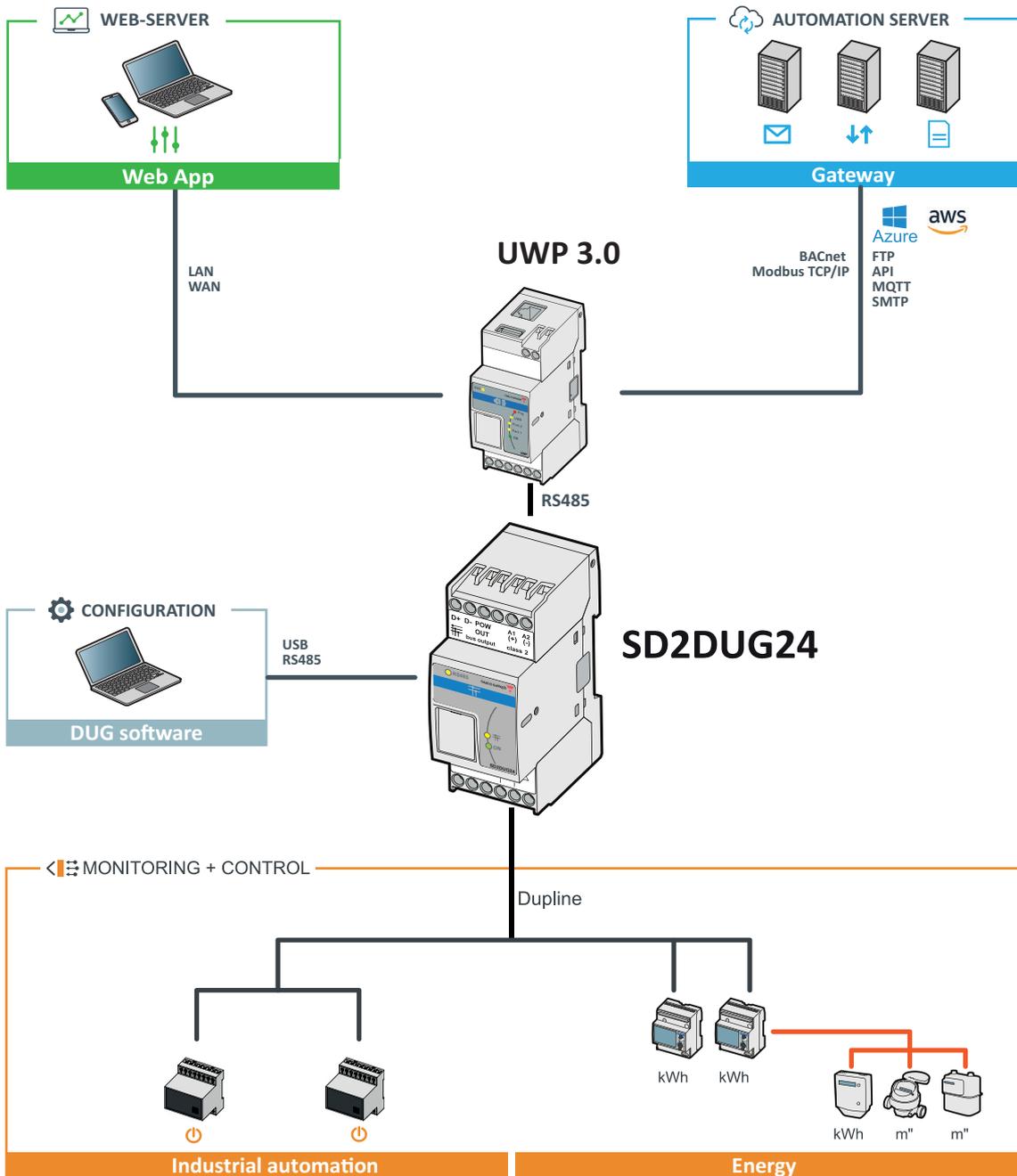
### Applications

Dupline® is a bus system that offers unique solutions for a wide range of applications in industrial automation, water distribution, energy management, railway systems and many other areas.

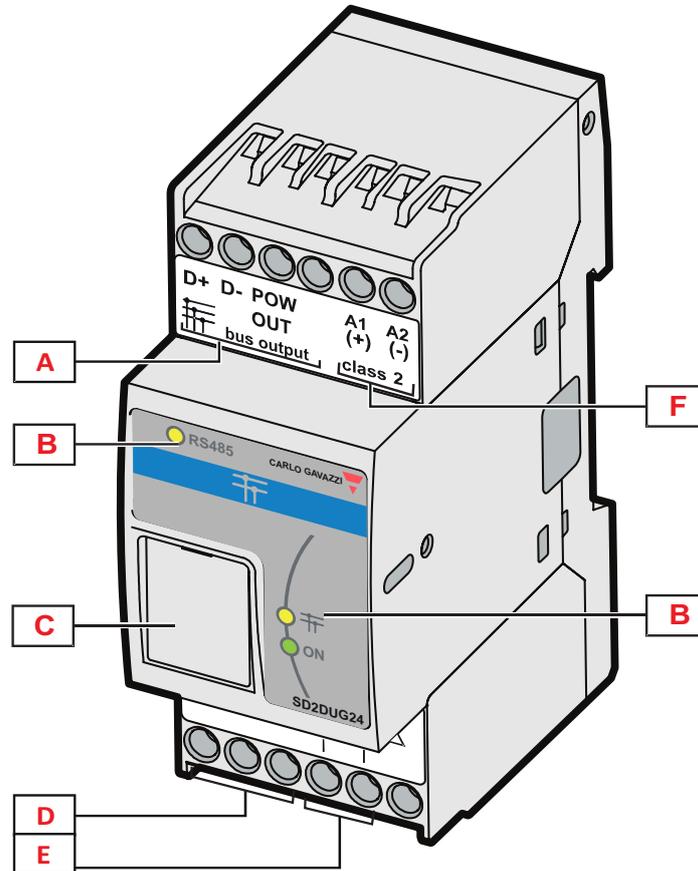
### Main features

- Modbus-RTU slave interface
- Built-in 2 and 3-wire Dupline® Channel Generator
- Generates 8, 16, 24, 32, 40, 48, 56, 64, 96 and 128 channels
- All Dupline® protocols are supported
- LED-indications for supply, Dupline® carrier and RS485
- Formulas to scale the raw data read from the field
- Easy connection to the PC via a USB port

# Architecture



## Structure

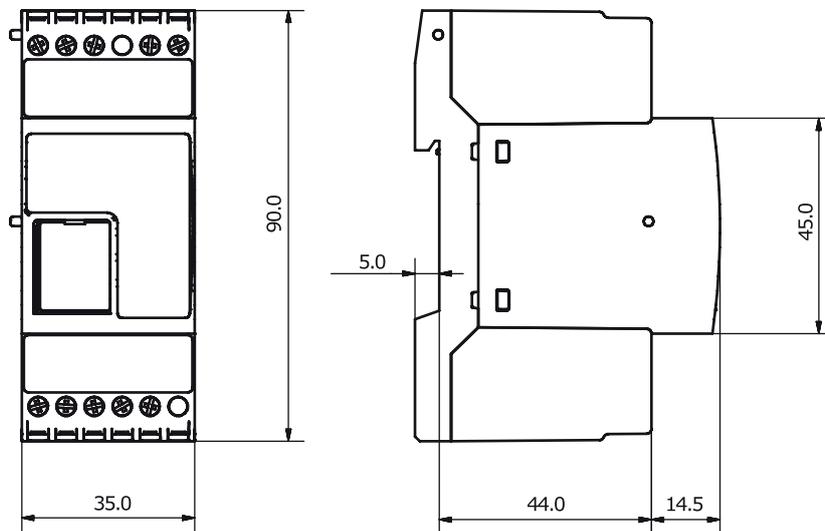


Element	Component	Function
A	Dupline bus	Connection to Dupline® modules
B	Information LED	Indicating the following status: Green LED: Power supply Yellow LEDs: Dupline® bus and communication
C	Micro-USB port	Connection to the USB port of the PC for programming
D	RS485	Modbus RS485 connection
E	RS485 termination	Termination for RS485
F	Power supply	Power supply connection block

## Features

### General

<b>Material</b>	Noryl
<b>Dimensions</b>	2-DIN module
<b>Weight</b>	150 g
<b>Protection grade</b>	Front: IP50; Screw terminal: IP20
<b>Terminal</b>	12 screw-type; Section: 1.5 mm <sup>2</sup> maximum; Torque: 0.4-0.8 Nm



### Environmental specifications

<b>Operating temperature</b>	-20° to +50°C (-4° to 122°F)
<b>Storage temperature</b>	-50° to +85°C (-58° to 185°F)
<b>Humidity (non-condensing)</b>	20 to 80% RH

### Compatibility and conformity

<b>Electromagnetic compatibility (EMC) - immunity</b>	EN 61000-6-2
<b>Electromagnetic compatibility (EMC) - emissions</b>	EN 61000-6-3
<b>Approvals</b>	 

## Power Supply

<b>Power Supply</b>	Overvoltage cat. II (IEC 60664-1, par. 4.3.3.2); Rated operational voltage: 15 to 24 VDC $\pm$ 20% <b>Note:</b> No galvanic separation between power supply A1, A2 and Dupline bus. Use always separate power supplies for each SD2DUG24.
<b>Operational voltage range</b>	10 to 30 VDC (ripple included)
<b>Rated operational power</b>	6.5 W
<b>Protection for reverse polarity</b>	Yes
<b>Connection</b>	A1 (+) and A2 (-)
<b>Power on delay</b>	Typ. 4 s
<b>Power off delay</b>	1 s

## Inputs/outputs insulation

Type of input/output	DC power supply	RS485 interface	Micro-USB port	Dupline bus / POW OUT
<b>DC power supply</b>	-	1.5 kV	0 kV	0 kV
<b>RS485 interface</b>	1.5 kV	-	1.5 kV	1.5 kV
<b>Micro-USB port</b>	0 kV	1.5 kV	-	0 kV
<b>Dupline bus/POW OUT</b>	0 kV	1.5 kV	0 kV	-

Note: 0kV inputs / outputs are not insulated.

## Ports

### Dupline®

<b>Voltage</b>	8.2 V $\pm$ 10%
<b>Maximum Dupline® current</b>	130 mA 3-wire bus, max current on pow output 2.8 A, CL.2
<b>Terminal</b>	D+, D- and pow out, protected against reversal of connection and short circuit Note: If close to the Dupline bus there are devices that consume more than 1kW, use only shielded cable
<b>Default number of Dupline® channel</b>	128, ouputs repeat inputs
<b>Dupline® protocol supported</b>	Split I/O, Double scan, Analink, 8-bit binary with and without multiplexer, 3 1/2 digit BDC with and without multiplexer, EM24: transmission of analogue data, transmission of counter values, transmission of alarms


**RS485**

<b>Bus type</b>	RS485
<b>Protocol</b>	Modbus slave
<b>Connection</b>	Terminals GND, A(-), B(+). T1, T2: termination inputs. They have to be short-circuited on the last module of the network. See wiring diagrams.
<b>Data format</b>	Selectable: 1 start bit, 7/8 data bit, no/odd/even/ parity, 1/2 stop bit
<b>Baud rate</b>	Selectable: 2400, 4800, 9600, 19200, 38400, 57600, 115200 bits/s
<b>Modbus address</b>	1 to 247
<b>Default Modbus parameters</b>	Address = 1, Speed = 9600, Data bits = 8, Parity = None, Stop bit = 1
<b>Default USB address</b>	0 and 1


**USB**

<b>Type</b>	High speed 2.0
<b>Connections</b>	"Micro A" type as "Device" function on the front of the housing protected by front cover

## Connection Diagrams

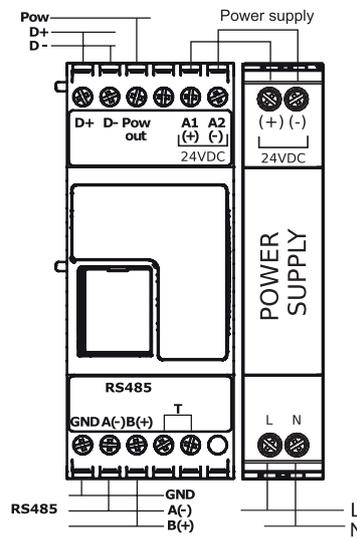


Fig. 1 Wiring diagram

**Note:** Terminals T, these two terminals must be short-circuited in the last module of the network.



## References

### Further reading

Information	Document	Where to find it
SD2DUG24 software manual	SD2DUG software manual	<a href="http://www.productselection.net/MANUALS/UK/SD2DUG_manual.pdf">www.productselection.net/MANUALS/UK/SD2DUG_manual.pdf</a>
SD2DUG24 software	Configuration software	<a href="http://www.productselection.net/Download/UK/sd2dug24_software.zip">www.productselection.net/Download/UK/sd2dug24_software.zip</a>

### Order code



### SD2DUG24

### CARLO GAVAZZI compatible components

Purpose	Component name/code	Notes
Substitution	G34900000xxx	
Substitution	G349600005xxx	



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