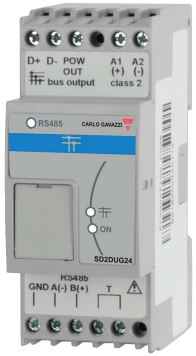
SD2DUG24

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.
- **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.
- **Fast and easy installation.** Completely free topology, no special cable required, no screen or twist. It can go for kilometers*.

**Note: the maximum length of the Dupline line may vary depending on the combination of the cable size and type, the number or type of the connected devices and the distribution of the devices on the line.*

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.

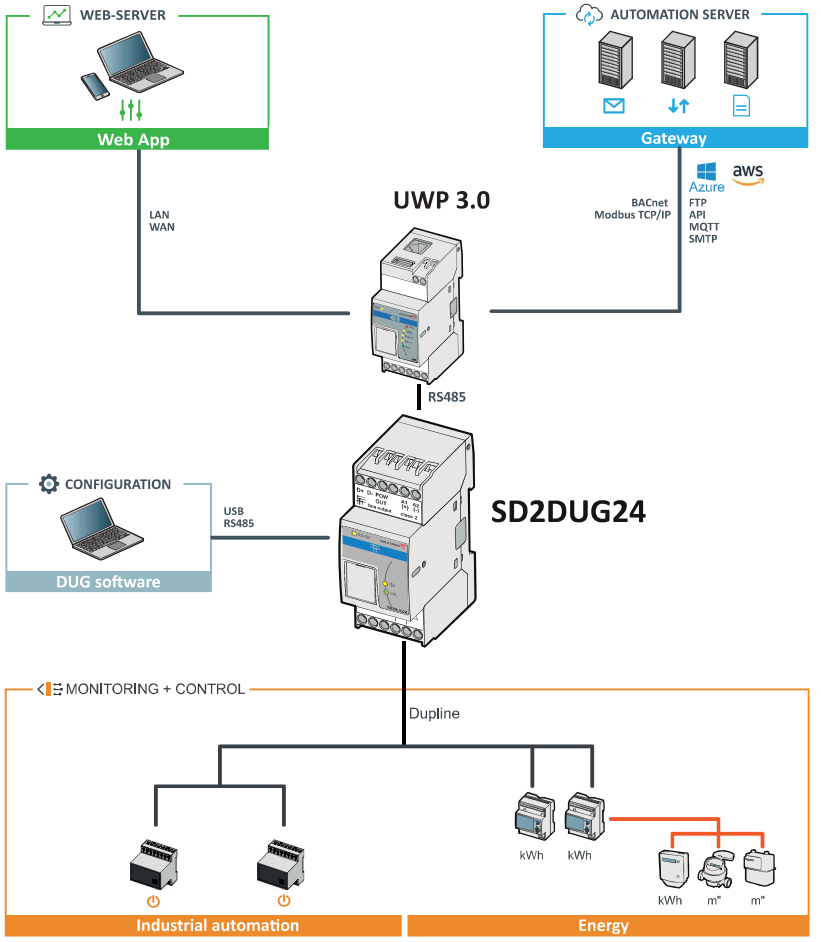
Applications

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.

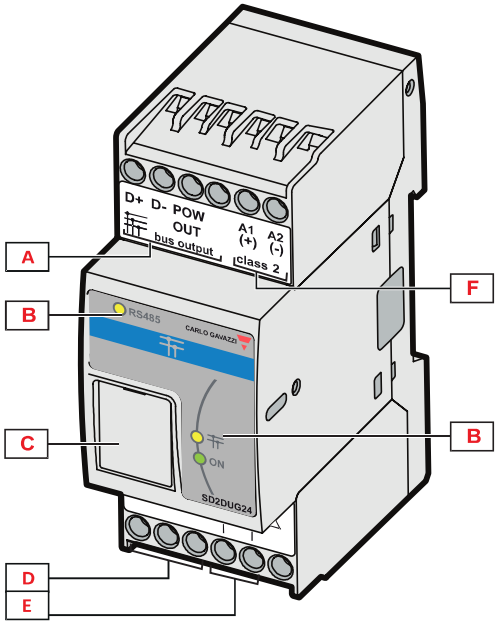
Main features

- 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

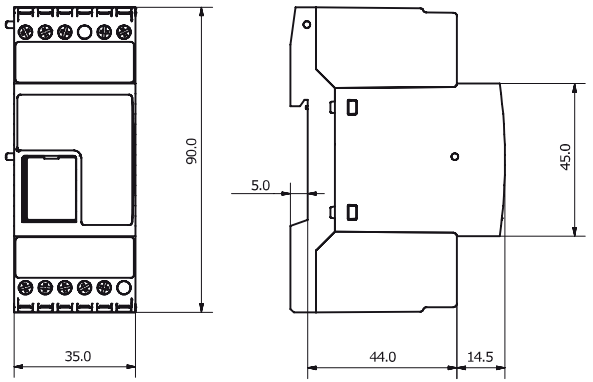


Element	Component	Function
A	Dupline bus	Connection to Dupline® modules
B	Information LED	Indicating the following status: Green LED: Power supply Yellow LEDs: Dupline® bus and communication
C	Micro-USB port	Connection to the USB port of the PC for programming
D	RS485	Modbus RS485 connection
E	RS485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

Features

General

Material	Noryl
Dimensions	2-DIN module
Weight	150 g
Protection grade	Front: IP50; Screw terminal: IP20
Terminal	12 screw-type; Section: 1.5 mm² maximum; Torque: 0.4-0.8 Nm



Environmental specifications

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

Compatibility and conformity

Electromagnetic compatibility (EMC) - immunity	EN 61000-6-2
Electromagnetic compatibility (EMC) - emissions	EN 61000-6-3
Approvals	CE cULus LISTED

Power Supply

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

Inputs/outputs insulation

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

Note: 0kV inputs / outputs are not insulated.

Ports

Dupline®

Voltage	8.2 V ±10%
Maximum Dupline® current	130 mA 3-wire bus, max current on pow output 2.8 A, CL.2
Terminal	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
Defualt number of Dupline® channel	128, ouputs repeat inputs
Dupline® protocol supported	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

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

USB

Type	High speed 2.0
Connections	“Micro A” type as “Device” function on the front of the housing protected by front cover

Connection Diagrams

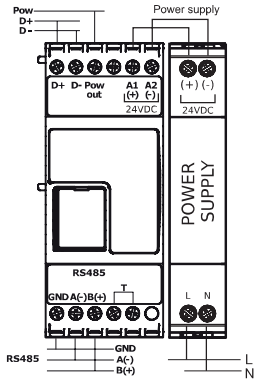


Fig. 1 *Wiring diagram*

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	www.gavazziautomation.com/SD-2DUG_software_manual_EN.pdf
SD2DUG24 software	Configuration software	www.gavazziautomation.com/Setup_DUG_software.zip

Order code

SD2DUG24

CARLO GAVAZZI compatible components

Purpose	Component name/code	Notes
Substitution	G34900000xxx	
Substitution	G349600005xxx	