D5 SERIES | WIRELESS SYSTEM

Our D5 series includes a range of radio devices operate in the European free-use bands that differ in the type of interfaces and that communicate with each other directly or through repeaters.
Available interfaces include serial port, serial port plus Ethernet port , serial port plus various both analog and digital inputs and outputs.
Thanks to the presence of various types of inputs and outputs, the D5 series is ideal also in data and remote control applications.

OPERATING BAND

Our D5 Series radiomodems operate in the European free-use bands. The D510 model operates at 169MHz, and the D540 model operates at 868MHz, both outputting up to 500mW. High-sensitivity receiving, higher-power output and the dynamics of programmability, allow us to reach great distances.

OPERATING FUNCTION

Different operating profiles programmable via software as a point -to-point, point to multi-point, broadcasting and Modbus master/slave mode or multimaster make the D5 series a flexible product that can adapt to the most varied needs.

Routing tables make it totally transparent to address to the D5 units in a network even in the presence of complex paths.

The Modbus profile makes the series D5 a real Modbus node to which up to eight external Modbus modules (sensors and/or actuators) can be connected via RS485, thus expanding the number of available inputs and outputs (power supply of additional Modbus modules supplied directly from the device).

CONFIGURATION AND CONNECTIVITY

The D5 series units are fully configurable through software utilities or via web thanks to the web server available in the master unit and it making the information available on the serial RS485 and Ethernet protocol.

DATA ENCRYPTION

128bit AES (Advanced Encryption Standard) ensures transmitted data security.

LOW POWER

Power saving features are configurable, thanks to the use of bistable relays for digital outputs and activation procedures of external sensors, only for the time necessary, so that the D5 series can also be used with battery power for long periods.

CONSTRUCTION

Available with different housings, it can be used in both indoor and outdoor applications (IP66/IP68) and explosion proof applications with Atex and IECEx certification.

ERE WIRELESS

D5 SERIES | WIRELESS SYSTEM

D510-6
D540-6

Radiomodem & RTU

Modbus RTU wireless node with embedded I/O
Mirror mode for remote transmissiono of embedded I/O
Low Energy mode for low power application (multimaster configuration)
Routing table
Digipeater function

Interface:

RS485 serial port	4 digital input
2 digital output	2 analog input
2 analog output	1 counter input

D510-E
D540-E

Ethernet Radiomodem

Seriale and Ethernet connectivity
Modbus over TCP (server)
Web Server on board
Network diagnostic software
Routing table
Digipeater function

Interface:

RS485 serial port	Ethernet port RJ45
1 digital input	1 digital output

D510-2
D540-2

Radiomodem

Radiomodem totally transparent to the data packet used
RS232 e RS485 connectivity
Embedded I/O for radio transmission of signals and alarms
Digipeater function

Interface:

RS232 - RS485 serial port	1 digital input
1 digital output	

Nomenclature & Accessories

D5 **4** 0 - **6** 1 **1** E **00**
_ _ _ __
a b c d

a **Frequency**
- 1 VHF 169 MHz
- 4 UHF 868 MHz

b **Interface**
- 2 1 digital input, 1 digital output, serial port RS232 e R485
- 6 4 digital input, 2 digital output, 2 analog input, 2 analog output, 1 counter input, serial port RS485
- E 1 digital input, 1 digital output, serial port RS485, Ethernet port RJ45

c **Enclosure**
- 1 Alluminum IP44
- 2 Alluminum IP44 suitable for DIN rail
- A Alluminum IP66/68, 3 cable entries M20x1.5
- B Alluminum IP66/68, 3 cabel entries M25x1.5

d **Antenna**
- 00 without antenna
- 01 λ/4 169MHz (BNC)
- 02 λ/4 short 169MHz (BNC)
- 04 λ/4 868MHz (BNC)
- 20 λ/2 (dipole, vertical) 169MHz (5 mt, BNC)
- 22 λ/2 (dipole, vertical) 868MHz (5 mt, BNC)
- 40 Yagi 3 elements 169MHz (10 mt, BNC)
- 42 Yagi 6 elements 868MHz (10 mt, BNC)

D540-3
D540-4

Radiomodem with embedded antenna

Embedded antenna
Outdoor design
RS485 connectivity
Digipeater function

Interface:
RS485 serial port

Nomenclature & Accessories

D5 **4** 0 - **4** 0 **6** E **00**
_ _ _ __
a b c d

a **Frequency**
4 UHF 868 MHz

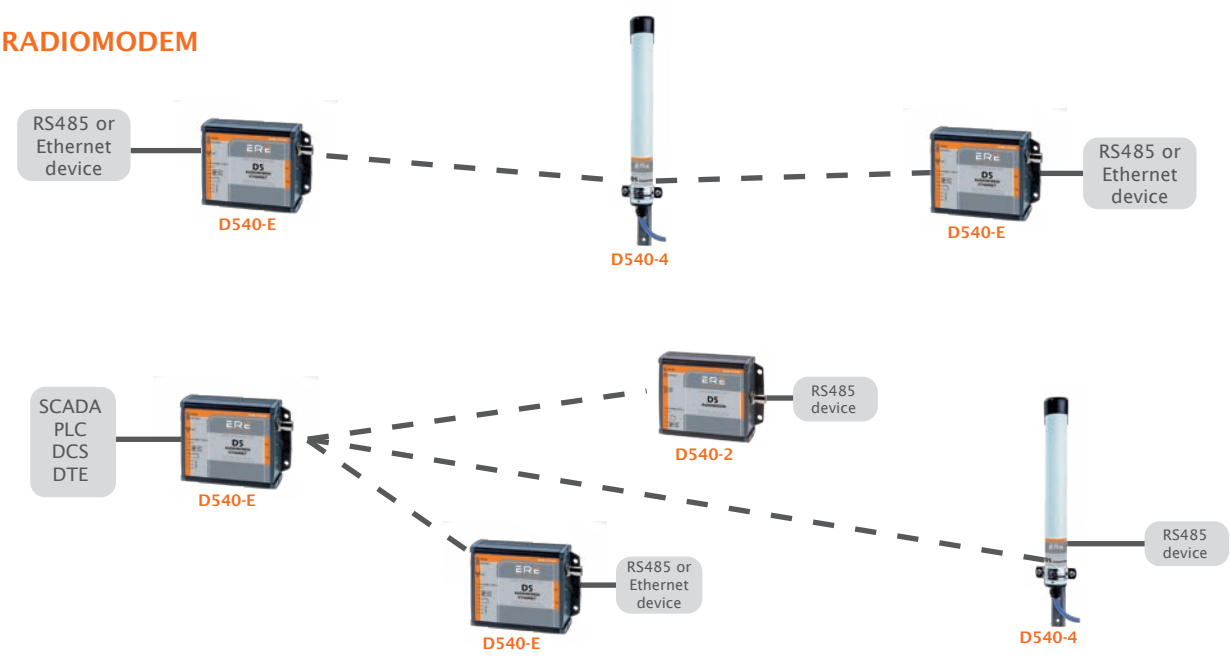
b **Interface**
3 serial port RS485 with M12 connector
4 serial port RS485 with 5 mt cable length
5 serial port RS485 with 10 mt cable length

c **Enclosure**
6 fiberglass IP65

d **Antenna**
30 λ/2 (dipole, vertical) integrated
50 Yagi 6 elements pre-wired (1,5 mt)

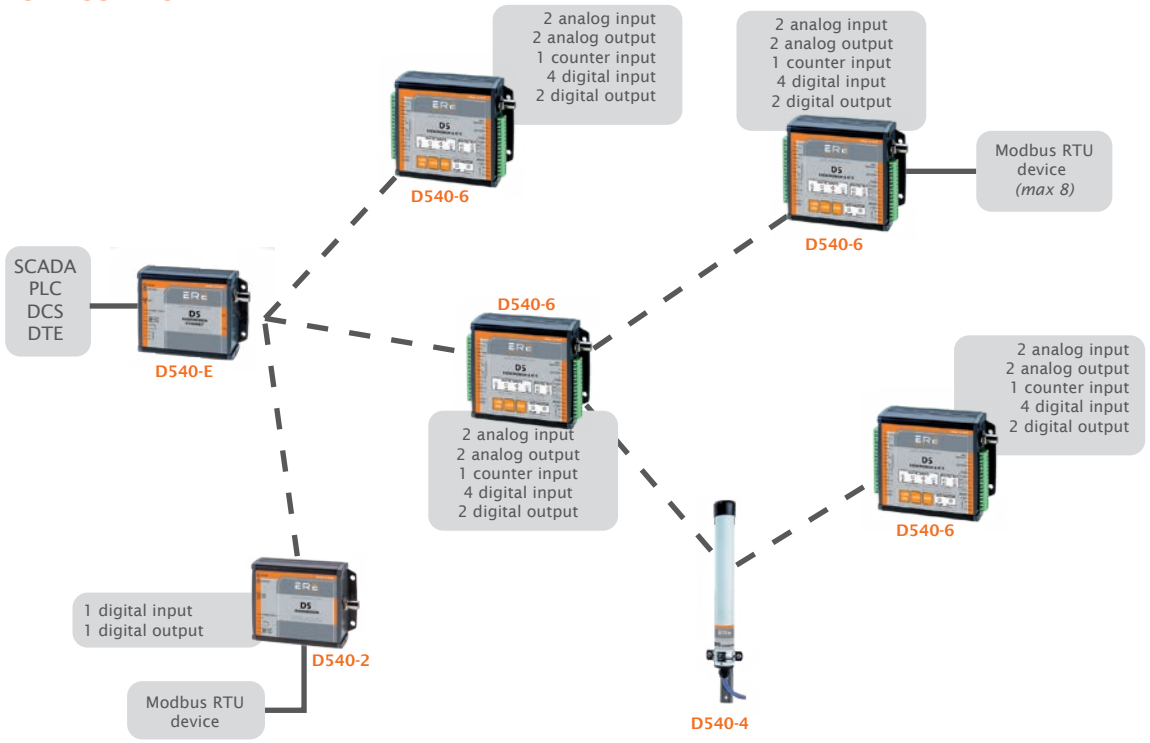
Configuration example

RADIOMODEM



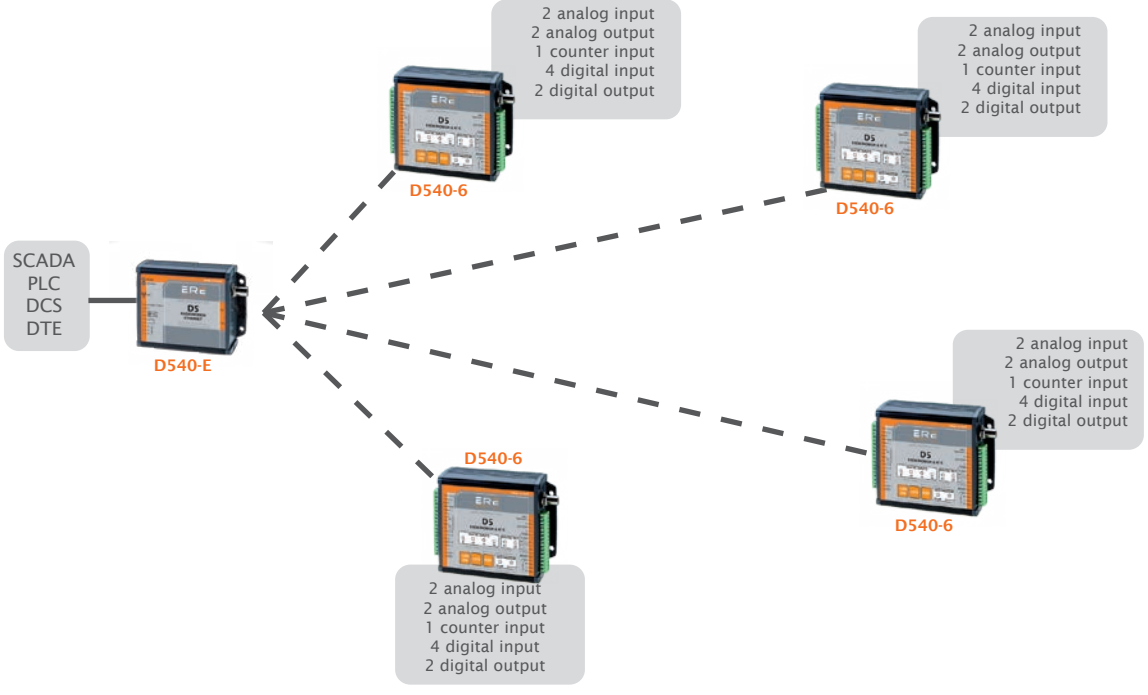
RS485 serial point-to-point or point-to-multipoint (broadcast) connection totally transparent to the protocol used and Ethernet point-to-point or point-to-multipoint connection with maximum data rate 19200 bps with limitated connectivity (consult ERE).
Possibility of using one or more radiomodem as a digipeater

MODBUS RTU



Network Modbus RTU point multi point with serial or Ethernet protocol (Modbus over TCP).
Possibility to use routing tables to reach devices that are far from the master unit and possibility of connecting additional Modbus RTU nodes and devices of third parties.

MODBUS LOW ENERGY



Low-power network with remote I/O D540-6 that send the status of the I/O on event or cyclically and then return to sleep mode (consumption in sleep < 10 uA).

MIRROR

Point-to point wireless connection mirror type allows to mirroring the I/O status of each unit.

FEATURES

GENERAL	D510 Series	D540 Series
Operating band	169.400 - 169.475	868-868.6 868.7-869.2 869.4-869.65
Channel number	1 @ CH50 kHz 3 @ CH25 kHz 6 @ CH12.5 kHz	26 @ CH50 kHz 54 @ CH25 kHz
Canalization	12.5 - 25 - 50 kHz	25 - 50 kHz
Modulation	9K00F1D o 18K0F1D	
Frequency stability	± 2 ppm	± 1 ppm
Radio data rate (Tx/Rx)	4800 bps @ 12.5 kHz - 9600 bps @ 25 kHz - 19200 bps @ 50 kHz	
Supply voltage	9-32 VDC 3.3-4.8VDC battery operated (only D510-6 and D540-6)	
Consumption (@12VDC)	Rx ≈ 30 mA | Tx ≈ 200 mA	
Standards ref.	EN 300 220-1 v.2.3.1 and EN 300 220-2 v.2.3.1	

TRANSMITTER

Output power	50 - 150 - 500 mW	25 - 150 - 500 mW
Frequency deviations	± 1.8 kHz @ 12.5 kHz ± 3.6 kHz @ 25 kHz	
Output power stability	± 1.5 dB	

Adjacent channel attenuation and blocking compliant to EN 300 220-1 v.2.3.1

RECEIVER

Type	CLASS 1 - LBT and AGILITY	CLASS 2 - LBT and AGILITY
Sensibility @ BER < 10^{-2}	< -105 dBm @ 50 kHz < -107 dBm @ 25 kHz < -110 dBm @ 12.5 kHz	< -105 dBm @ 50 kHz < -107 dBm @ 25 kHz

Adjacent channel attenuation and blocking compliant to EN 300 220-1 v.2.3.1

D5 SERIES | WIRELESS SYSTEM

SERIAL PORT	D510-6 | D540-6 | D510-E | D540-E | D540-3 | D540-4
Type	RS485
Data rate	from 1200 to 57600 bps
	D510-2 | D540-2
Type	RS232 and RS485
Data rate	from 1200 to 38400 bps

I/O INTERFACE	D510-6 | D540-6
Digital output rating (n°2)	1A@24V AC/DC resistive load (normally open)
Digital input (n°4)	PNP
Counter input (n°1)	PNP (frequency max 10 Hz)
Analog input (n°2)	4-20 mA (passive)
Analog output (n°2)	4-20 mA (passive)
	D510-2 | D540-2 | D510-E | D540-E
Digital output rating (n°1)	1A@24V AC/DC resisteive load (normally open)
Digital input (n°1)	5-24VDC o 3.5-20VAC Z_{INP} 2.2 kΩ (optoisolated)

ETHERNET INTERFACE	D510-E | D540-E
Standard	IEEE802.3
Connection	RJ45
Data transmission	10/100 Mbps Auto-Detection
DHCP	Server, Client
Auto MDI/ MDI-X	Yes
Protocols	TCP/IP, Modbus RTU over TCP (server)
Configuration	WEB Server, Windows Utility

DIMENSIONS	D510-6 | D540-6 D510-2 | D540-2	D510-E | D540-E	D540-3 | D540-4
Overall dimensions	140x110x50 mm	100x90x40 mm	L 420 mm, Ø40 mm
Weight	330 gr	230 gr	750 gr
Operating temperature	-30°C +70°C	-30°C +70°C	-30°C +70°C

MADE IN ITALY

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E005-A4-E-03 - I dati contenuti in questa specifica sono soggette a modifiche senza preavviso