

Wireless modules · Extension modules · Programming & antenna cables · Antennas

A simple solution for i/o and serial communications

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SATEL-LP

- Easy, reliable
and secure



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SATEL

Mission-Critical Connectivity

SATEL-LP

for simple I/O and serial communication

The SATEL-LP product family offers an extremely easy solution for simple I/O and serial communications. With software-free radio setup, SATEL-LP offers a cost-effective wireless solution where it is too costly or not possible to run a wire.

All SATEL-LP modules are DIN rail mountable. The communications over the air interface is secured with a 128-bit AES encryption and authentication.



3 frequency ranges available

2.4 GHz

Designed for international use and suitable for short-range, clear line-of-sight applications.

869 MHz

Designed to be used in Europe for short- or middle-range applications of up to 20 kilometres.

900 MHz

Designed for North American use and suitable for either short-range, non-line-of-sight applications or for long-range applications of up to 30 kilometres.

3 modes of operation

Wire-in – Wire-out

Maps I/O from one location to another via wireless without the need for an additional controller or software.

Wireless I/O to Modbus

Collects I/O directly at SATEL-LP radio module using extension modules. I/O is addressed via Modbus without the need for additional hardware.

Wireless Serial

Provides RS-232 and RS-485 networking, reliable connecting serial end devices, PLCs and RTUs.



Direct connection – no need for RTU or PLC devices

SATEL-LP expansion modules offer direct connection of common industrial signals to the SATEL-LP radio modules, eliminating the need for RTU or PLC devices. Expansion modules are hot-swappable and up to 32 expansion modules can be added to one SATEL-LP radio module.

Mesh networks with up to 250 nodes. Easy point-to-point or network structures such as line, star or mesh.

- Easy, software-free configuration
- High-speed communications, up to 500 kbps
- 2.4 GHz, 869 MHz or 900 MHz licence free frequency range
- Hot-swappable modular I/O
- All-in-one wireless platform
- Mesh networks with up to 250 nodes
- Frequency hopping spread spectrum

Wireless modules

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SATEL-LP24 YM0424

- Licence free 2.4 GHz
- Designed for global use
- For short-range, clear line-of-sight applications up to 5 kilometres
- FHSS (Frequency Hopping Spread Spectrum)
- Licence-free ISM (Industrial, Scientific and Medical) band
- Mesh networks of up to 250 devices



SATEL-LP9 YM0409

- Licence free 900 MHz
- Designed for North America, South America and Canada
- For short-range, non-line-of-sight applications or for long-range applications of up to 30 kilometres
- FHSS (Frequency Hopping Spread Spectrum)
- Licence free ISM (Industrial, Scientific and Medical) band
- Mesh networks of up to 250 devices



SATEL-LP8 YM0408

- Licence free 869 MHz
- Designed to be used in Europe
- For short- or middle-range applications of up to 20 kilometres
- FHSS (Frequency Hopping Spread Spectrum)*
- Mesh networks of up to 99 devices

* Depends on the topology and baud rate

Comparison chart

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	SATEL-LP24	SATEL-LP9	SATEL-LP8
Frequency Range	2.4002 ... 2.4785 GHz	902 ... 928 MHz	869.4 ... 869.65 MHz
Receiver sensitivity (adjustable)	-106 dBm (16 kbps)	-112 dBm (16 kbps)	-122 dBm (1.2 kbps)
	-96 dBm (125 kbps, default)	-105 dBm (125 kbps, default)	-114 dBm (9.6 kbps, default)
	-93 dBm (250 kbps)	-102 dBm (250 kbps)	-111 dBm (19.2 kbps)
		-95 dBm (500 kbps)	-104 dBm (60 kbps)
		-103 dBm (120 kbps)	
Carrier max. power	100 mW (adjustable)*	1000 mW (adjustable)	500 mW (adjustable)
Supply voltage	19.2 ... 30.5 Vdc	10.8 ... 30.5 Vdc	19.2 ... 30.5 Vdc
Max. current consumption (@ 24 VDC@25°C, stand-alone)	≤ 65 mA	328 mA	≤ 65 mA
Temperature Range	-40 ... +70°C		
Serial Interface	RS-232, RS-485	RS-232, RS-485	RS-232, RS-485
Size H x W x D	17.5 x 99 x 114.5 mm	35 x 99 x 114.5 mm	17.5 x 99 x 114.5 mm
Antenna Connector	RSMA (female)		
Air Interface Encryption	AES128		
Transient Surge Protection	Yes		
Degree of protection	IP20		
Number of supported devices	≤ 250 (Addressing via software)	≤ 250 (Addressing via software)	≤ 99 (per wireless network)
Conformance	CE compliance (R&TTE 1999/5/EC) FCC Part 15.247, IC RSS-210	FCC Part 15.247, IC RSS-210	CE compliance (R&TTE 1999/5/EC)
Vibration (operation)	in accordance with IEC 60068-2-6: 5 g, 10 Hz ... 150 Hz		
Shock	16 g, 11 ms		

* In Europe max. 19 dBm

Local radio regulations need to be taken into account.
Values are subject to change without a notice.

Many ways to use

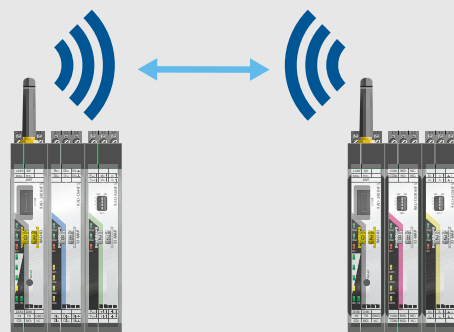
Various network structures can be quickly and easily implemented with SATEL-LP from a simple point-to-point connection to complex mesh networks.



Use as a point-to-point connection

One option for transmitting wireless I/O signals in both directions is to use a point-to-point connection. Connect the signals, apply the operating voltage and set the addresses via the thumb wheel - and the wireless connection is established automatically without any further settings.

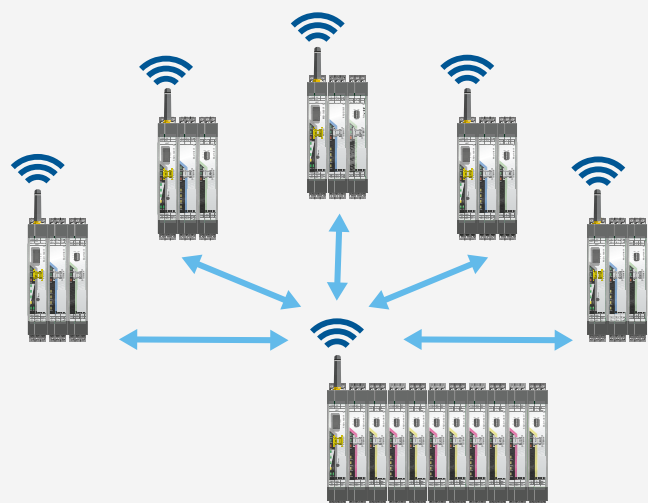
If the network is extended with additional I/O modules, they can be assigned to one another quickly and easily via the thumb wheel on the front of the module (I/O mapping).



Use in a star network

Signals can also be transmitted bidirectionally with SATEL-LP in a star configuration. Connect the signals, apply the operating voltage and set the addresses via the thumb wheel - and the wireless connection is established automatically without any further settings.

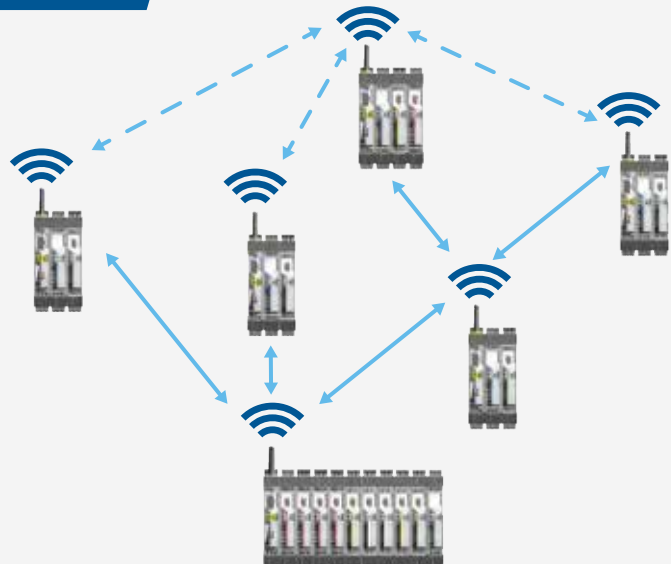
The signals can be easily split or multiplied by additional receivers. If the network is extended with additional I/O modules, they can be assigned to one another quickly and easily via the thumb wheel on the front of the module (I/O mapping).



Use in mesh networks

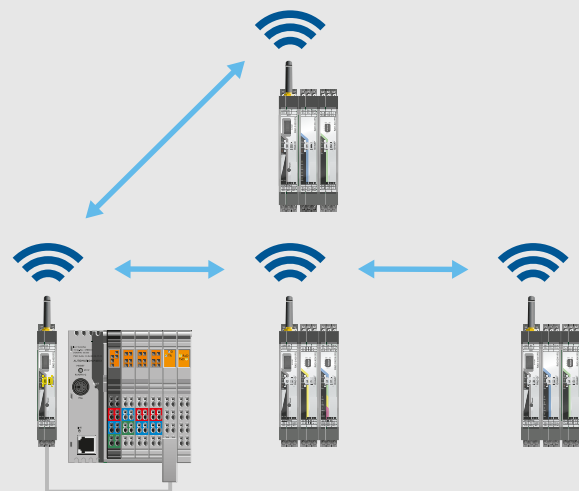
Up to 250 devices can be used in one high-performance mesh networks. In the event that a connection in the network fails, information is redirected via another network node (roaming).

Self-organization and self-healing functions keep the network stable, each device has multiple communications paths.



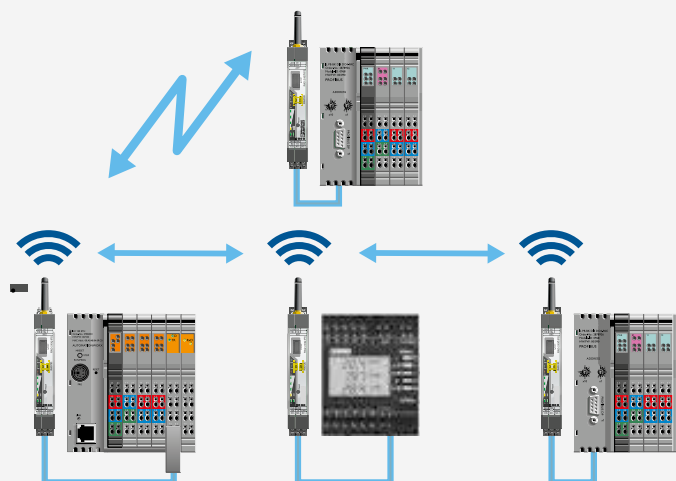
Use in PLC/Modbus RTU mode

With I/O integration in the control level, you can wirelessly connect I/O extension modules directly to a controller (I/O to serial). The wireless module provides an RS-232 or RS-485 interface for this purpose. In PLC/Modbus RTU mode, the master wireless module works as a Modbus slave and has its own Modbus slave address.



Use in a serial mode

In serial data mode, multiple controllers or serial I/O devices are networked easily and quickly using wireless technology. In this way, serial RS-232 or RS-485 cables can be replaced.



I/O extension modules

SATEL-LP-DI4

- 4 digital inputs (0 ... 250 V AC/DC)

Product code YI0101

SATEL-LP-DOR4

- 4 digital relay outputs (5 A, 24 VDC / 250 VAC)

Product code YI0102

SATEL-LP-AI4

- 4 analog inputs (0...20 mA / 4 ... 20 mA)

Product code YI0103

SATEL-LP-AO4

- 4 analog output (0... 20 mA / 4 ... 20 mA, 0 ... 10 VDC)

Product code YI0104

SATEL-LP-DAIO6

- 1 analog input (0...20 mA / 4 ... 20 mA)
- 1 analog output (0... 20 mA / 4 ... 20 mA, 0 ... 10 VDC)
- 2 digital inputs (0 ... 250 V AC/DC)
- 2 digital relay outputs (2A, 24 VDC / 250 VAC)

Product code YI0105

SATEL-LP-DI8

- 8 digital inputs (0 ... 30.5 VDC) OR 2 pulse inputs (0 ... 100 Hz)

Product code YI0106

SATEL-LP-DO8

- 8 digital transistor outputs (30.5 VDC / 200 mA)

Product code YI0107

SATEL-LP-PT100

- 4 PT 100 resistance thermometer (-50 °C ... +250 °C)

Product code YI0108

Cables

Cable for programming:

SATEL-LP-PROG

- USB data cable for SATEL-LP -radio modules
- Length 2 meters, incl. power feed

Product code YC0520

Antenna cable:

SATEL-LP-RF2

- 2 m antenna cable, N male to RSMA male, impedance 50ohm

Product code YC1520

Antenna cable:

SATEL-LP-RF50

- 50 cm cabin feedthrough cable, N female to
- RSMA male, impedance 50ohm

Product code YC1550

Low loss cable:

ECOFLEX10+

- attenuation: 1.34dB/10m @ 896/900
- MHz, *max. length 15m, 2.36dB/10m @ 2.4
- GHz, *max. length 8m

Product code YC1004

Low loss cable:

ECOFLEX15

- attenuation: 0.92 dB/10m @ 896/900
- MHz, *max. length 22m, 1.63dB/10m @
- 2.4GHz, *max. length 12m

Product code YC1006

* recommended max. length

Connectors for Ecoflex cables

N male connectors for ECOFLEX10

Product code YC1003

N male connectors for ECOFLEX15

Product code YC1007

Power supply

PS-DIN-2

- Power supply for DIN-rail, IN 100-240Vac, OUT 24Vdc/2.5A

Product code YP0118

Omnidirectional antennas

incl. wall mounting bracket and mast clips

SATEL-LP-ANT24N

- Antenna 2.4 GHz, 6dBi, N female

Product code YA2400

SATEL-LP-ANT9N

- Antenna 900 MHz, 7dBi, N female

Product code YA1900

SATEL-LP-ANT8N

- Antenna 869 MHz, 4dBi, N female

Product code YA0868

Portable antennas

SATEL-LP-ANT8/9

- Antenna 820-960MHz

Product code YA0899

SATEL-LP-ANT24

- Antenna 2.4GHz

Product code YA2410

Accessories for configuration

SATEL-LP-MEMORY

- Configuration memory
- Memory stick for saving individual configuration data

Product code YO0010

CONF-sticks for creating unique network ID and changing RF band:

SATEL-LP-CONF3

- Stick for SATEL-LP24 (RF band 3)

Product code YO0003

SATEL-LP-CONF5

- Stick for SATEL-LP24 (RF band 5)

Product code YO0005

SATEL-LP-CONF7

- Stick for SATEL-LP24 (RF band 7)

Product code YO0007

SATEL-LP8-CONF1

- Stick for SATEL-LP8 (RF band 1)

Product code YO0001

SATEL-LP9-CONF1

- Stick for SATEL-LP9 (RF band 1)

Product code YO0002



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SATEL is one of the world's leading experts and innovators of radio technology for wireless data communication. Our solutions are used in wide range of industrial applications. We are known for our high quality, expertise, service and support.

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