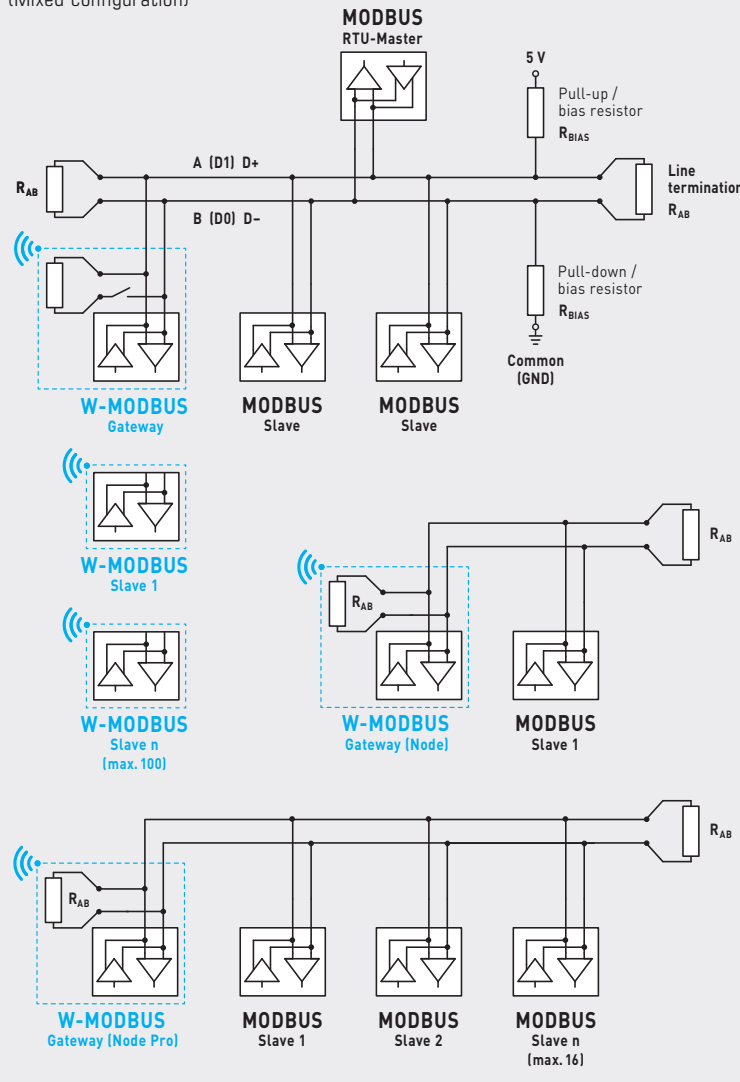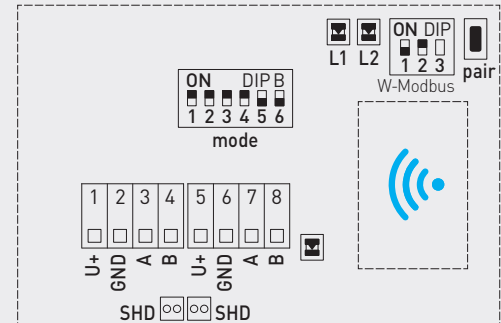# W-Modbus

General bus topology structure
with terminating and bias resistors
(mixed configuration with W-Modbus gateway)

S+S REGELTECHNIK

Bus topology with terminating and bias resistors (Mixed configuration)

Gateway (Tyr3)   GW-wModbus (Wireless)

DIP B „mode":
Bus parameters
(Baud rate, parity...)

DIP „W-Modbus":
Operating Mode
(Gateway, Node)

Telegram Status (LED)

Network Status (L1)
Connection quality (L2)
L1 L2

Shielding (SHD)

Teach-in key (pair)

Various functions of the W-Modbus gateway:

Gateway operation for connection to an existing Modbus topology or directly to a DDC, serves as a base station for W-Modbus sensors (max. 100 radio nodes).

Node operation enables the radio-based connection of a wired Modbus sensor to a W-Modbus network (max. 1 wired sensor).

Node Pro operation (extended node operation) serves for the radio-based connection of multiple wired Modbus sensors (max. 16 wired nodes).
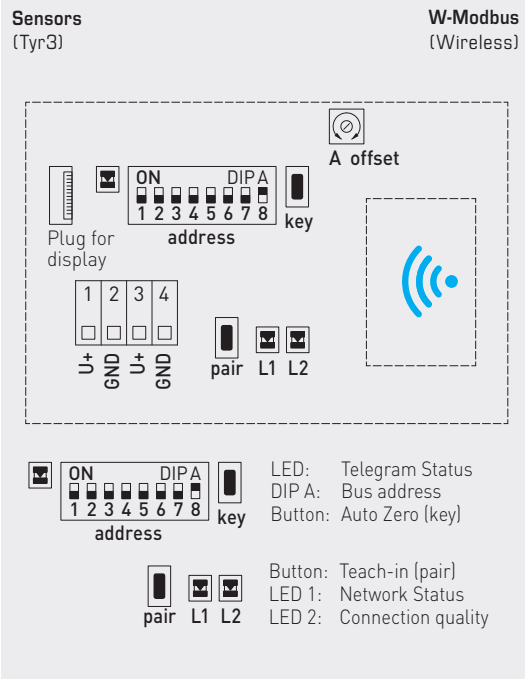
The **W-Modbus protocol** is based on the (2.4 GHz ISM radio band) and employs a patented frequency hopping technology to maximise reliability and resistance to interference. This means that reliable radio transmission can also be ensured in industrial environments.

In the **W-Modbus network** up to 100 nodes can communicate with each other over a long distance of up to 500 metres (open field) using one gateway. A standardised W-Modbus module ensures compatibility with all W-Modbus units.

The **W-Modbus sensors** only need to be supplied with power. Only the slave address is configured manually, the transmission parameters (baud rate and parity) are set automatically. No terminating resistor is required. The sensor is then paired with a gateway.

The **W-Modbus gateway** serves as a transition between wired Modbus and radio-based W-Modbus. Even mixed configurations of wired and radio-based Modbus units can be easily integrated into existing network topologies via the W-Modbus gateway.

Sensors (Tyr3)   **W-Modbus** (Wireless)

Plug for display

ON — DIP A — address
1 2 3 4 5 6 7 8   key

A offset

1 2 3 4   U+ GND U+ GND   pair   L1 L2

ON — DIP A — address
1 2 3 4 5 6 7 8   key

LED: Telegram Status
DIP A: Bus address
Button: Auto Zero (key)

pair   L1   L2

Button: Teach-in (pair)
LED 1: Network Status
LED 2: Connection quality

TECHNICAL DATA

Power supply:	24 VAC (± 20 %); 15…36 VDC
Power consumption:	< 2 W / 24 VDC; < 3.5 VA / 24 VAC
Electrical connection:	see schematic diagram 0.2 - 1.5 mm², via push-in terminal
Bus address:	**without power supply** (in powerless mode) **configurable and addressable** via DIP switch!
Bus parameters:	automatic configuration
Communication:	**W-Modbus** (wireless Modbus with 2.4 GHz ISM, AES-128 encrypted)
Range:	**max. 500 m** (open field), approx. 50 - 70 m (inside buildings) between two wireless nodes
Nodes:	max. 100 radio nodes
Bus protocol:	Modbus (RTU mode), address range 0…**247** selectable
Status indicator:	Telegram Status, Network Status, Connection Quality
Display:	The Modbus interface allows the display to be **individually** configured both in the 7-segment area and in the dot-matrix area.

LED (telegram indication)

DIP switch A (bus address)

Push-button (auto zero) for manual zero point calibration

OFFSET correction

W-Modbus module (wireless) for radio-based connection

Plug terminal (push-in terminals)

Teach-in push-button and additional **status LEDs** (network status and connection quality)

Foldable **display** (optional), individually programmable display

Cable gland (M20) with seal and strain relief