Mesh Networking

Kill the cost of cabling

Sleeper
2.4GHz Modbus-to-Wireless Sleeper

Sleepers operate as standalone devices, and send data to the Pathfinder Base at user-configured intervals. They integrate seamlessly with existing Mesh Networks, and enable additional network topologies and functions.

Choose between our high-power sleeper (WG-SLB) requiring 5–36V DC supply, or our power-saver model (WG-SLB-PS) with lithium battery supply and a reduced transmission range to conserve power.

Specifications

Number of Sleepers
Up to 32 Sleepers in a single network

Analogue input
2x universal input channels:
0/4–20mA, 0–10V, T/C (universal) or RTD (PT100/1000)

USB programmable

Power supply
WG-SLB: 5–36V DC with backup battery
WG-SLB-PS: 3V DC lithium battery

Sleep period
1, 2, 5, 15, 30 or 60 minutes (DIP switch selectable)

Transmission range/sensitivity
See over page

Operating temperature
–40 to 85°C (–40 to 185°F)

Enclosure
35mm DIN rail mount, IP20

Dimensions (H x W x D)
101 x 45 x 120mm (3.98 x 1.77 x 4.72”). Height with included antenna = 150mm (5.91”)

Transmission Specifications

RF frequency range 2405–2485MHz (2.4GHz)

RF data rate 250Kb/s

RF transmission power +20dBm
(Power Saver Sleeper: +4.5dBm)

Transmission range
Up to 1.5km (0.9mi) line of sight
(Power Saver Sleeper: 80m [262ft])

RF receiver sensitivity
–100dBm

Number of RF channels
16

Spreading method
Direct sequence

Modulation
O-QPSK

Order Codes

Pathfinder

WG-PTH Wireless Pathfinder (dual function Base/Remote)

-5 1 x RS232, 1 x RS422/485

-E 1 x Ethernet Modbus/RTU

-IO 2 x relay outputs, 4 x digital inputs, 2 x digital outputs

Sleeper

WG-SLB Wireless Sleeper, 5–36V DC supply

WG-SLB-PS Wireless Sleeper, Battery powered with reduced transmission range

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WG-BRO-16V05 (0405)
Low cost, low power wireless mesh networking.

Versatile & Flexible
Define Instruments Mesh Networks can be used to network entire factories or plants, and are ideal for a host of monitoring and control applications:

› Smart energy/grid
› Automatic Meter Readings (AMR)
› Lighting controls
› Tank monitoring
› Building automation systems
› HVAC control
› Labs/medical devices and more...

Mesh Networking
Unlike Bluetooth or Wi-Fi devices, Define Instruments Pathfinders are connected to each other by multiple pathways.

This enables routes to be created between nodes that would otherwise be out of range, allowing the network to be extended across a much wider area. It also increases the stability of the network, because data can easily be rerouted if any node malfunctions.

Define Pathfinders transmit up to 1.5km (0.9mi) line of sight, and up to 96 nodes can be connected in a single network (64 Pathfinders and 32 Sleepers).

Connections between nodes are dynamically updated and optimised through sophisticated mesh routing tables. New nodes can be added as needed, and will be automatically incorporated into an existing network.

Pathfinder
2.4GHz Modbus-to-Wireless Base/Remote
This dual function Modbus-to-Wireless unit can be used as either the Base, or a Remote node, and is the starting point for setting up a Mesh Network.

› Configured as a Modbus slave device for easy integration with PLCs
› Optional digital I/O
› Comms options include RS232, RS485, RS422 and Ethernet Modbus/RTU

Specifications

<table>
<thead>
<tr>
<th>Number of wireless nodes</th>
<th>Up to 64 Pathfinders (1 Base and 63 Remotes) can be connected in a single mesh network</th>
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<tbody>
<tr>
<td>Transmission range/sensitivity</td>
<td>See over page</td>
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</table>
| Comms (select one) | S: 1 x RS232 and 1 x RS485/422  
E: 1 x Ethernet (Modbus/RTU) |
| Data rate | 9600, 19200, 57600 or 115200 baud |
| Parity bit | Even or none |
| Supply voltage | 5–36V DC |
| Digital I/O (optional) | 4x digital inputs, 2x digital outputs and 2x relay outputs |
| Operating temperature | –40 to 85°C (–40 to 185°F) |
| Enclosure | 35mm DIN rail mount, IP20 |
| Dimensions (H x W x D) | 101 x 23 x 120mm (3.98 x 0.91 x 4.72”). Height with included antenna = 150mm (5.91") |

The perfect solution for applications that require low data rates and wireless networking across large areas.

Variety of communication methods and network topologies available to suit different needs for small, medium or large networks.

Employs the Modbus/RTU protocol, simplifying setup and integration with PLC’s.