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TEL-WLx Wireless LAN Communication System

Features
- 2.4 GHz operation
- Protected WLAN Network
- Up to 30 kilometre operating range
- Point to point / Point to multi point
- Weather resistant enclosure
- Easy connection and wiring

Outline

GeoSIG’s TEL-WLx Wireless LAN Communications System offers versatility and ease of use in a variety of locations and applications.

TEL-WLx allows combining a number of field stations to one single network, which feature easy data acquisition and maintenance. The authorized user has access to the data from every node inside the network. Additionally it is possible to change the settings of every field station and the equipment attached to it from a remote location. At the same time the network is fully protected from unauthorized access by WEP encryption.

In point to point mode wireless connections up to 30 km are possible. If the distance is shorter point to multi point configurations are possible.

GeoSIG is able to assist its customers in finding the right equipment for their project as well as in the evaluation of potential telemetry links. Global terrain data allows GeoSIG to calculate line of sight profiles anywhere around the world.

System specifications

Radio Characteristics:
- Frequency Range: 2300 to 2500 MHz
- RF Output power: 20 dBm (100mW)
- Range, Line-of-sight*: 30 km
- RX Sensitivity: 802.11g: -87 dBm @ 6Mbps
  802.11b: -92dBm @ 1Mbps
- Method: 802.11b/g
- RF Connector: Type N female
- Impedance: 50 Ohm
- Antenna Type: 610mm dish
- Antenna Gain: 21dBi
- Antenna Frequency Range: 2400-2485 MHz
- Antenna VSWR: ≤1:7:1

System connections:
- Data connection: RJ45
- Power connection: PoE via RJ45

Power Requirements:
- Supply voltage: 18-28 VDC (PoE)
- Power Consumption: Typical ~3W. Maximum 12W.

Environment:
- Operating Temperature: -30 °C to +60 °C
- Operating Humidity: 0-90% relative (outdoor parts)
  0-70% relative (indoor parts)

Dimensions:
- Mast Diameter Required: 35-50 mm
- Antenna Diameter: 610 mm
- Antenna Depth: 150 mm excl mounting bracket
  250 mm incl mounting bracket
- Transceiver Dimensions: 200 x 150 x 55 mm
  260 x 260 x 120 mm (Weather shield)
- Ethernet OVP dimensions: 75 x 36 x 19 mm
- PoE Injector dimensions: 85 x 76 x 36 mm

* in not urbanized areas
## Standard Package Contents

<table>
<thead>
<tr>
<th>Description</th>
<th>P2P</th>
<th>P2M</th>
</tr>
</thead>
<tbody>
<tr>
<td>610mm parabolic antenna</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Dipole omnidirectional antenna</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Clamp for mounting parabolic antenna on a mast.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Antenna cable (up to 3m)</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Antenna cable surge protector</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Transceiver module</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Transceiver module weather protection</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Clamp for mounting transceiver module</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>OVP for Ethernet (DIN rail mountable)</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>PoE injector (DIN rail mountable)</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

## Optional Equipment

<table>
<thead>
<tr>
<th>Description</th>
<th>P2P</th>
<th>P2M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply capable of powering the telemetry equipment and one GMSplus.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Outdoor protective housing (steel) 600 x 400 x 700mm. Including DIN rail, assorted wires and internal wiring of related equipment. Battery. Capacity specified at time of order.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>100W solar panel, including fixation kit, kit for installation on mast and 2x10m of cable.</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Includes solar controller (DIN mountable), OVP equipment, external battery cable for GMSplus, fuse folder and battery cable for internal wiring. Battery to be ordered separately.</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>
TEL-WLRS: Telemetry WLAN Remote Station Point to point solution (P2P)

With a point to point connection it is possible to exchange data between two points over distances of up to 30km. The solution consists of a transceiver connected to a parabolic antenna. The system is delivered with suitable over voltage protection. The transceiver is normally placed on a mast along with the antenna and is powered using PoE technology. This allows using a single cat5e or cat6 cable for both data and power transfer. The solution includes OVP and PoE injector, both of which can be installed on a DIN rail in a cabinet or other enclosure.

TEL-WLCS: Telemetry WLAN Central Station Point to multi point solution (P2)

With a point to multi point system it is possible to exchange data between a central station and several remote stations. The implementation is mostly the same as for point to point solutions, the only difference being the central station and how it is configured for communicating with remote stations. The solution can be implemented as a central station with one omnidirectional antenna and a single transceiver. This solution is cost effective, but limits the distance between the central station and the remote station to a few kilometres.

Furthermore it limits the number of remote stations to just a few. An alternative configuration is a central station with multiple directional antennas and transceivers. This solution is the most efficient, consisting of a dedicated transceiver and directional antenna for each remote station, allowing the full distance of up to 30km and many stations.