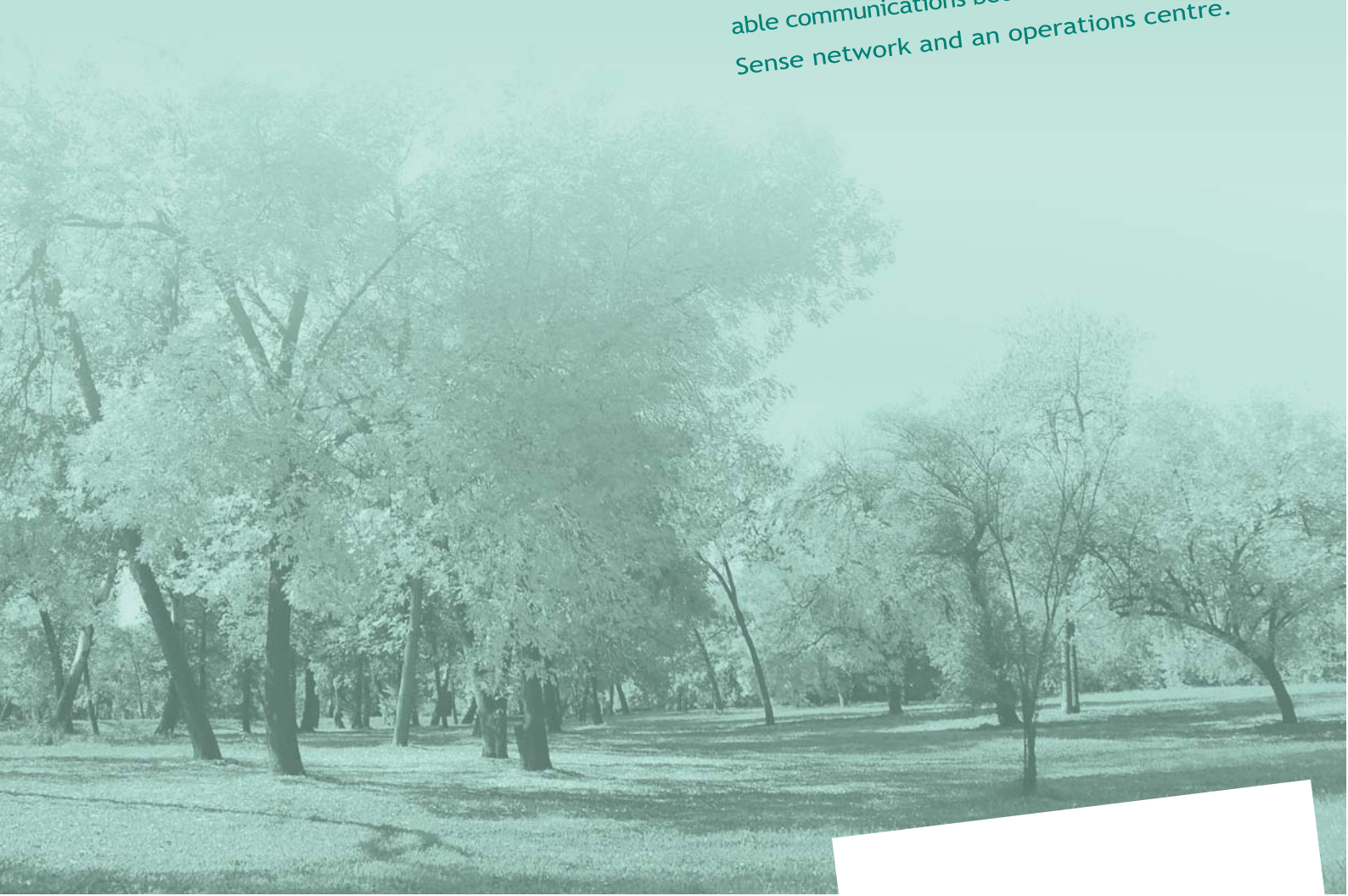


OptumGate

OptumGate is a wireless gateway to complement OptumSense Wireless Sensor Networks for forest fire detection. OptumGate is responsible for transmitting sensor alarms to central locations such as operation centres for forest fire crisis management. OptumGate supports WAN connections through multiple interfaces, including GSM data, GPRS, 3G, and Wi-Fi. Designed to be reliable, OptumGate devices may be placed in forest as far as 600 and as close as 300 m to each other, providing redundant and dependable communications between an OptumSense network and an operations centre.



The OptumGate Wireless Sensor Network Gateway

The OptumSense wireless sensor network is comprised of thousands of sensors deployed camouflaged in the canopy of trees; sensors generate alarms that need to be transferred to the central operations centre to be further processed and dispatched to the authorities in charge. This is the role of the OptumGate gateway: to accept sensor fire alarms which they transmit through a WAN connection to operation centres.

OptumGate devices are placed in proper camouflaged housings, such as bird houses, in forests where at least one supported WAN is in range. Every OptumGate device develops a cell similar to the GSM network cells. OptumSense sensors located within the cell area use this gateway to transfer alarm messages to central operation centres. Alarm messages are comprised of a unique sensor ID and a timestamp added by OptumGate gateways. In addition, OptumGate transmits all kinds of diagnostic messages so as to ensure high reliability and network availability.

Depending on the sensor network density and the local topography, 4-8 local OptumGate devices are required per square kilometre. Additionally, multiple interfaces, including GSM data, GPRS, 3G, and Wi-Fi, are supported. When the OptumGate is turned on, it performs a self-diagnostic and becomes ready for an incoming alarm from sensors in range. If an alarm is received, the Gateway will begin the procedure of sending a data message to the communications server.

In spatially dense deployments, where the same sensor is in range of more than one OptumSense gateways, all the gateways transmit its alarm messages, which is not taken as multiple alarms since they contain the same sensor ID. OptumGate provides a digital interface that allows communication with other devices such as weather stations that can be set up to transmit meteo data through the OptumGate's radio device to the operations centre. OptumGate requires minimal maintenance once a year or less often, depending on each specific installation's power plan.

OptumGate Specifications

Type of gateway	Autonomous integrated WSN gateway
Operating system	Sensible solutions firmware
Size	30 x 20 x 20 (cm) max
Weight	1,5 kg max
Weather sealing	IP 64
Operating temperature	-10° C to 65° C
Operating rel. humidity	0 - 100%, RHI, Condensing
Camouflage type	Bird house or other on request
WSN topology	Star
Sensors per gateway	Unlimited
WSN frequency band	433 MHz
Transmit data protocol	GSM
IP protocol support	YES
XML message structure	YES
GSM data modem	YES
TCP/IP support	YES
3G data modem	Optional
Wi-Fi network	Optional
WiMAX network	Optional
Satellite communications modem	Optional
Support for auto-switch protocol	YES
Network diagnostics function	YES
Battery type	Lithium
Battery autonomy	9-12 months
User-replaceable battery	YES
Alternative power source	Solar panels
"Locate me" function	Using GPS
Self-diagnostics	YES
Periodical system check and report	YES
Ambient temperature alarm	YES
MTBF, sensor communications	>3 years
MTBF, outbound communications	>3 years
Warranty	3 years

Optum


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Solutions

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