

**GPS**

**STANDARD**

Committed to security.

PERIMETER



# INVISIBLE PERIMETER PROTECTION SYSTEM



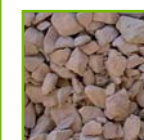
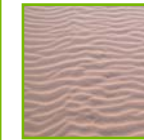


# INVISIBLE protection systems

These are systems that are installed below the surface of the ground and are therefore particularly suitable for applications that require the site aesthetics to be respected (historic monuments, museums, private residences) together with a system immune to environmental and atmospheric conditions (airports, refineries, industrial and military installations). They are completely invisible and it is

impossible to identify the route of the system, giving many advantages of stability and reliability. They are the perfect answer to the increasing requirements for external perimeter protection. They can be installed under surfaces with irregular profiles and different materials (asphalt, block paving, gravel and lawn) ensuring uniform coverage. They allow the detection of human intrusions, silently and invisibly,

ignoring small animals, birds and other disturbances that can cause false alarms on other systems. These systems have a high immunity to environmental conditions and the rate of external interference on the system is greatly reduced. GPS Standard has a wide range of buried sensors available and is able to respond to any requirements.





# GPSPLUS



The GPS Plus (Ground Perimeter System) is an invisible, buried perimeter detection system, which is an evolution of the traditional GPS system, designed using DSP (Digital Signal Processing) technology. This type of system digitises the signals provided by the sensor; analyses them in both time and frequency domains, guaranteeing extremely accurate evaluation. As well as high immunity to atmospheric interference, normal for buried tube systems, this

sensor is able to process the signals to discriminate particular frequencies (railways, roads with high traffic density, irrigation systems) from those generated by attempts to cross the sensitive area during an actual intrusion. This represents an ideal solution for high-risk sites, subject to high levels of environmental interference.

**OPERATION**  
The GPS Plus is based on the detection of differential pressure.

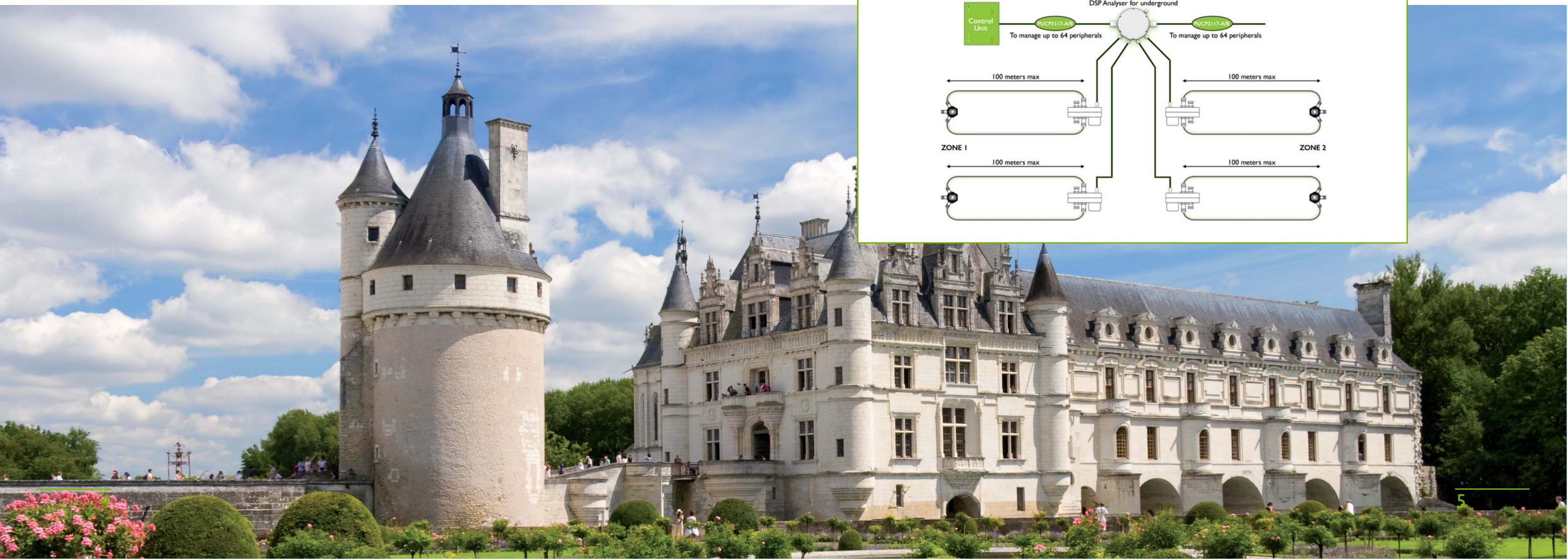
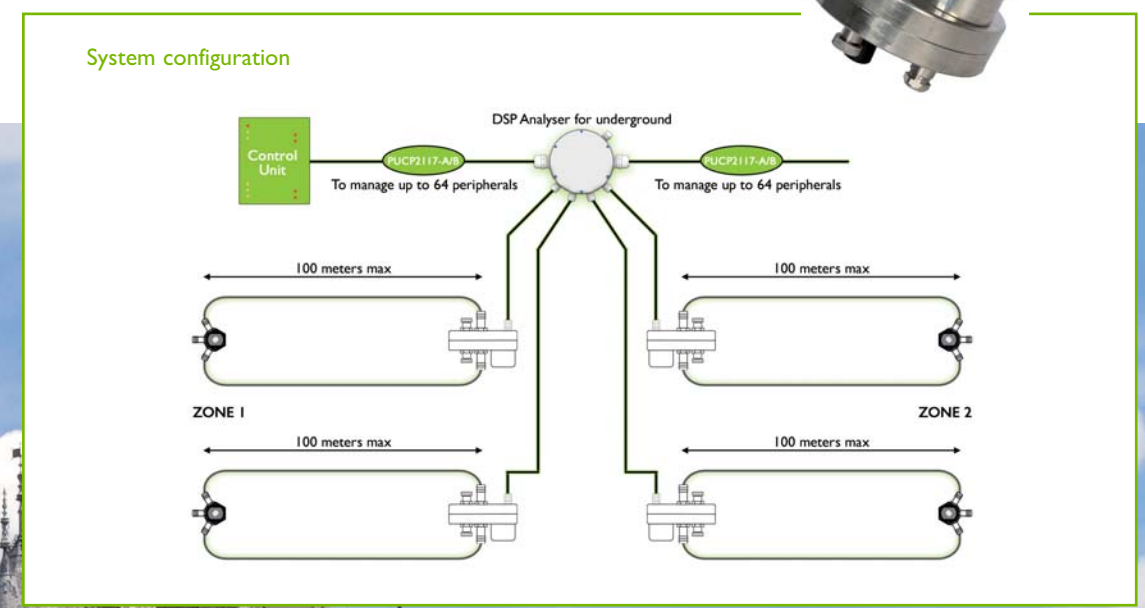
The tubes, buried along the perimeter, are filled with a liquid that allows the system to operate even at very low temperatures (anti-freeze), and then pressurised. A crossing of the sensitive area creates a difference in pressure between the tubes that is detected and processed by an appropriate transducer. These signals are sent to the signal processor, which analyses them and signals any alarms or pre-alarms. The ability to adjust the sensitivity of each single

zone allows the system to adapt to the characteristics of each individual application. All of the system components are protected by a system called a "watch dog", which, in the event of a software interruption, restores the normal system operation automatically. The system can be integrated with other protection systems (perimeter, internal sensors, CCTV) and central control systems creating flexible security

solutions for any application.

**COMPONENTS**  
The system is subdivided into two principal parts: the field equipment and the central control. The field is the "sensor" part of the system, with the capability to detect the events generated by an attempt to violate the protected perimeter. The different parts of this are: the concentrator, the GPS sensors, the GPS tube and

valves, creating a sensitive area about 3m wide and up to 200m long (100m per zone). The Universal Communications Processor (UCP) comprises a power supply, a communications interface/analyser and the output relay cards. The system can manage up to 64 peripherals (concentrators) all connected to a single cable.



# PPS



PPS (Positional Perimeter System) is an evolution of the traditional GPS buried tube system, based on the monitoring of pressure differentials. The innovative characteristic of the PPS is the capability to determine the crossing point of the protected zone with a resolution of  $\pm 5$  metres, providing detection for a maximum of 20 crossing points within any 200m detection zone, created using a pair of sensors. The actual lengths of the 20 zones can be configured based

on the site requirements. It can easily be integrated into a video surveillance system with movable cameras that can automatically view the crossing point for video verification of the intrusion. The system is designed using a DSP microprocessor with exceptional signal processing and analysis capabilities. The signals provided by the sensor are processed in both the frequency and time domains, discriminating common forms of disturbance from genuine alarms. The signals from

the sensor are stored in an archive providing pre and post alarm information. The type of analysis used guarantees a high immunity to atmospheric and environmental phenomena, making it ideal for installation in particularly noisy sites, such as railways and roads with heavy, high-density traffic.

### OPERATION

The PPS is based on the detection of pressure variations generated by a target that crosses the sensitive zone.

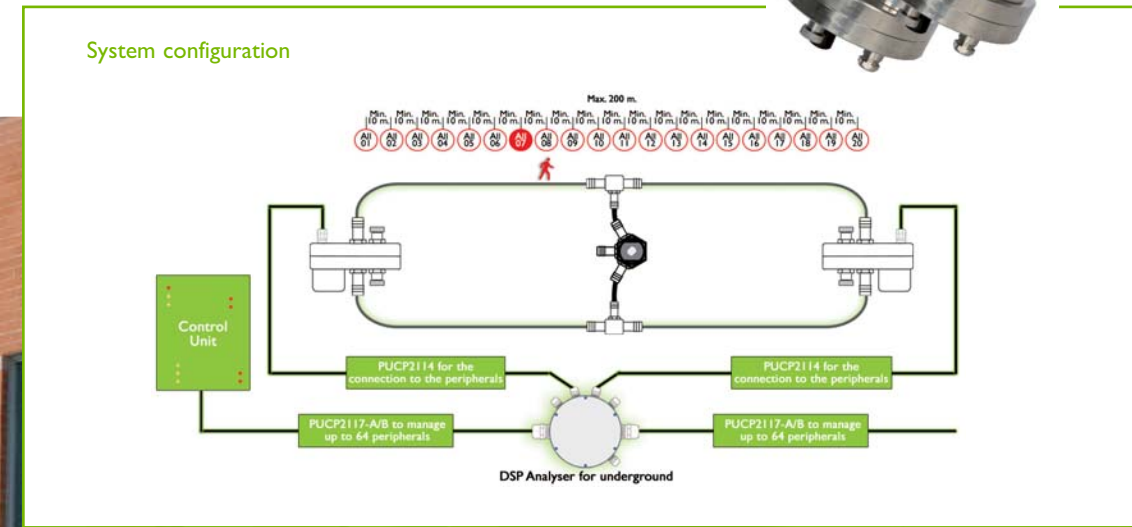
The tubes, buried along the perimeter, are filled with a liquid that allows the system to operate even at very low temperatures (antifreeze), and then pressurised. A crossing of the sensitive area creates a difference in pressure between the tubes that is detected and processed by two transducers at opposite ends of the tubes. These signals are sent to the signal processor; which analyses them and signals any alarms or pre-alarms to the central control (UCP). By calculating the delay

between the signals at the transducers it is also possible to determine the exact crossing point of the sensitive zone with a resolution of  $\pm 5$  metres.

### COMPONENTS

The system is subdivided into two principal parts: the field equipment and the central control. The field is the "sensor" part of the system, with the capability to detect the events generated by an attempt to violate the protected perimeter. The different parts of this are:

the concentrator; the PPS sensors, the PPS tube and valve, creating a sensitive area about 3m wide and up to 200m long. The Universal Communications Processor (UCP) comprises a power supply, a communications interface/analyser and the output relay cards. The system can manage up to 64 peripherals (concentrators) all connected to a single cable.





# RFC

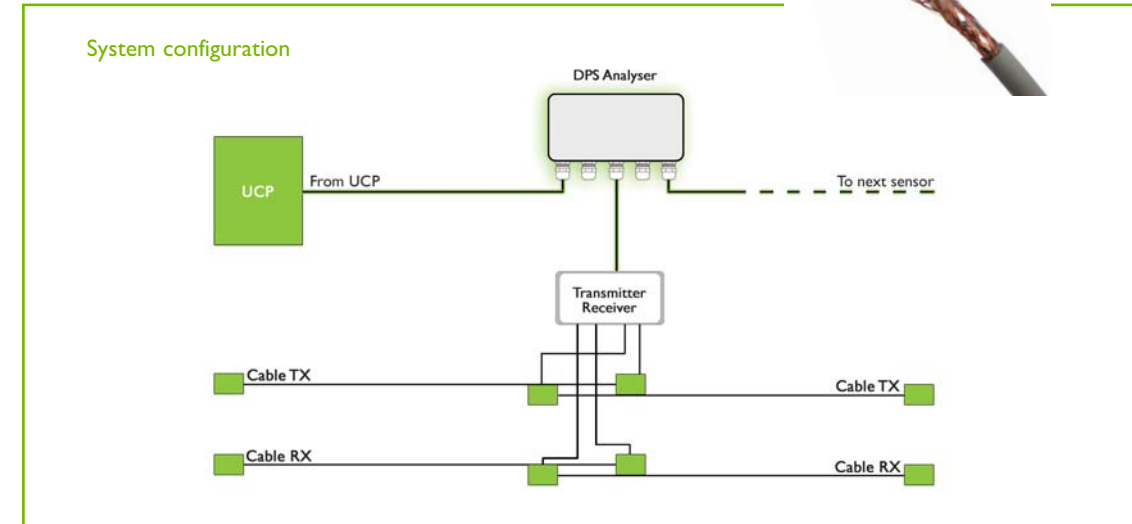
The RFC (Radio Frequency Cables) uses two buried cables (one a transmitter, the other a receiver) to create an electromagnetic field that is sensitive to movement within the protected area. The system is modular and is suitable for any length of perimeter and in particular for sites that require a high level of detection. It is able to detect moving intruders in the protection zone. It is

insensitive to vibrations in the ground.

### OPERATION

RFC detects the variation in the permeability within the electromagnetic field generated by movement of a target crossing the sensitive area. This is detected by making a comparison between the radio frequency energy transmitted and received. The signal obtained

in this way is sent to the concentrator, which processes it and communicates any appropriate alarm or pre-alarm information to the central communications processor.





# DPS



The DPS (Dual-technology Perimeter System) is a double technology system based on combining the two invisible systems: GPS Plus (differential pressure) and the RFC System (electromagnetic field generator). This system, using the latest generation of DSP microprocessor can make a very high number of evaluations of the received signals in a very short time.

The variations in pressure (GPS Plus) and electromagnetic field (RFC) signals are sent to the

central control, after appropriate processing, and transformed into alarm and monitoring signals. The system is modular and allows the protection of any length of perimeter. The system can generate an alarm event from either of the two technologies or only when both systems detect the same event at the same time.

### OPERATION

DPS uses the operation of two technologies and manages the principal characteristics of the

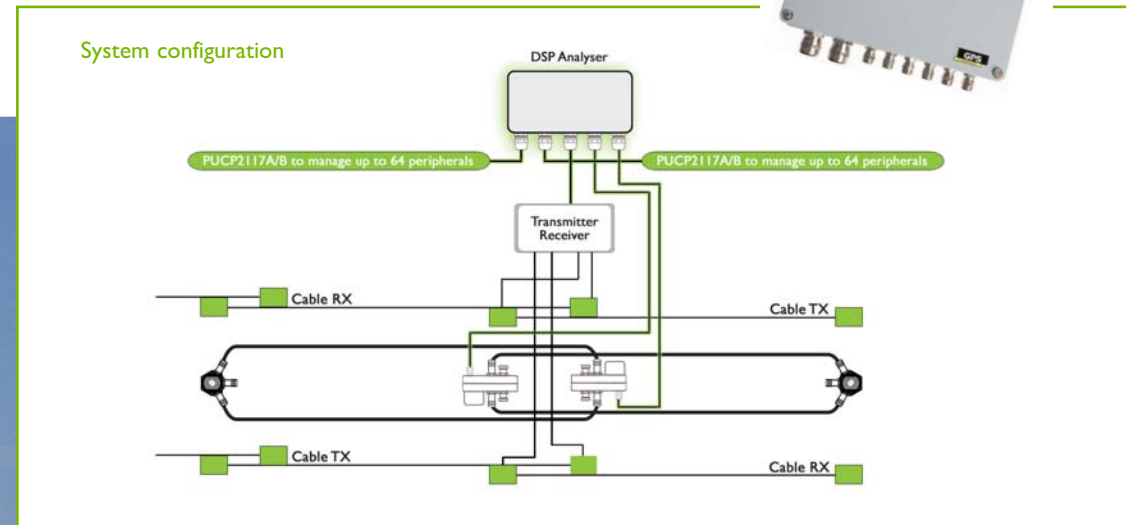
two types of system: RFC and GPS PLUS. RFC detects the variation in the permeability within the electromagnetic field generated by movement of a target crossing the sensitive area. This is detected by making a comparison between the radio frequency energy transmitted and received.

The signal obtained in this way is sent to the concentrator, which processes it and communicates any appropriate alarm or pre-alarm information to the central communications

processor: GPS PLUS is based on the detection of differential pressure. The tubes, buried along the perimeter, are filled with a liquid that allows the system to operate even at very low temperatures (anti-freeze), and then pressurised. A crossing of the sensitive area creates a difference in pressure between the tubes that is detected and processed by an

appropriate transducer: These signals are sent to the signal processor, which analyses them and signals any alarms or pre-alarms. The ability to adjust the sensitivity of each single zone allows the system to adapt to the characteristics of each individual application. All of the system components are protected by a system called a "watch dog", which, in the

event of a software interruption, restores the normal system operation automatically.





# DPP



The DPP (Dual-technology Perimeter System) is a double technology system based on combining the two invisible systems: PPS (differential pressure with point detection) and the RFC System (electromagnetic field generator). This system, using the latest generation of DSP microprocessor can make a very high number of evaluations of the received signals in a very short time.

The variations in pressure (PPS) and electromagnetic field (RFC)

signals are sent to the central control, after appropriate processing, and transformed into alarm and monitoring signals. The system is modular and allows the protection of any length of perimeter. The system can generate an alarm event from either of the two technologies or only when both systems detect the same event at the same time.

### OPERATION

DPS uses the operation of two technologies and manages the

principal characteristics of the two types of system: RFC and PPS. PPS is based on the detection of pressure variations generated by a target that crosses the sensitive zone. The tubes, buried along the perimeter, are filled with a liquid that allows the system to operate even at very low temperatures (anti-freeze), and then pressurised.

A crossing of the sensitive area creates a difference in pressure between the tubes that is detected and processed by two

transducers at opposite ends of the tubes. These signals are sent to the signal processor, which analyses them and signals any alarms or pre-alarms to the central control (UCP).

By calculating the delay between the signals at the transducers it is also possible to determine the exact crossing point of the sensitive zone with a resolution of  $\pm 5$  metres.

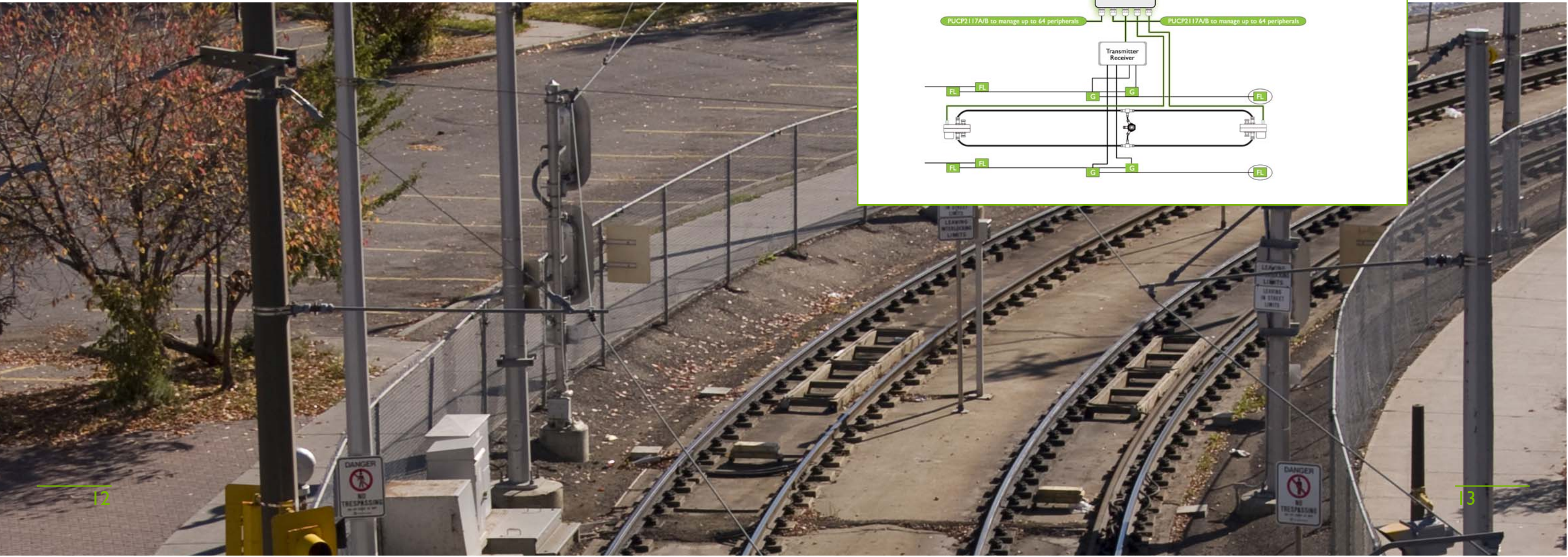
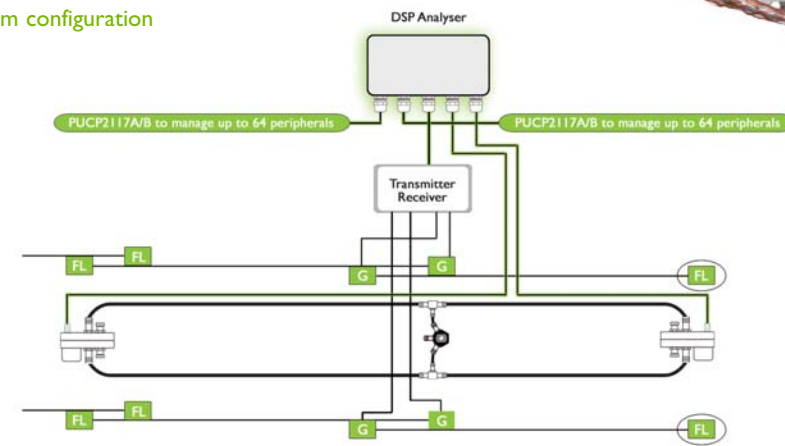
RFC detects the variation in the permeability within the

electromagnetic field generated by movement of a target crossing the sensitive area. This is detected by making a comparison between the radio frequency energy transmitted and received.

The signal obtained in this way is sent to the concentrator, which processes it and communicates any appropriate alarm or pre-alarm information to the central communications processor.



System configuration





# Technical features

**GPS Plus****RFC****DPS/DPP****PPS**

|                               |   |   |   |   |
|-------------------------------|---|---|---|---|
| <b>Coverage</b>               | 400 mt. (SA)<br>12800 mt. (MPX)                   | 300 mt. (SA)<br>19200 MT. (MPX)                   | 200 mt. (SA)<br>12800 MT. (MPX)                   | 200 mt. (SA)<br>2800 mt. (MPX)                    |
| <b>Parameter Set-Up</b>       | Local using PC                                    | Local using PC                                    | Local using PC                                    | Local using PC                                    |
| <b>PC connection</b>          | RS232 (SA)<br>COM115                              | COM115  | COM115  | COM115  |
| <b>Auxiliary alarm inputs</b> | 8 (SA)<br>8 (MPX) optional                        | 8 (SA)<br>8 (MPX) optional                        | 8 (SA)<br>8 (MPX) optional                        | 8 (SA)<br>8 (MPX) optional                        |
| <b>Local relay outputs</b>    | 8 (SA)<br>8 (MPX) optional                        | 8 (SA)<br>8 (MPX) optional                        | 8 (SA)<br>8 (MPX) optional                        | 8 (SA)<br>8 (MPX) optional                        |
| <b>Cabinet</b>                | Metal container (IP68)                            | Metal container (IP68)                            | Metal container (IP68)                            | Metal container (IP68)                            |
| <b>Dimensions(LxHxP)</b>      | 260x160x90 mm                                     | 260x160x90 mm                                     | 260x160x90 mm                                     | 260x160x90 mm                                     |
| <b>Weight</b>                 | 2 kg.   | 2 kg.   | 2 kg.   | 2 kg.   |
| <b>Operating temperature</b>  | -30° +70°C  | -30° +70°C  | -30° +70°C  | -30° +70°C  |
| <b>Relative humidity</b>      | 90%   | 90%   | 90%   | 90%   |
| <b>Power supply</b>           | 10-16Vcc (12V nom.) SA<br>24-55Vcc (48V nom.) MPX | 10-16Vcc (12V nom.) SA<br>24-55Vcc (48V nom.) MPX | 10-16Vcc (12V nom.) SA<br>24-55Vcc (48V nom.) MPX | 10-16Vcc (12V nom.) SA<br>24-55Vcc (48V nom.) MPX |
| <b>Current max.</b>           | 220mA@12Vcc SA<br>60mA@48Vcc MPX                  | 220mA@12Vcc SA<br>60mA@48Vcc MPX                  | 220mA@12Vcc SA<br>60mA@48Vcc MPX                  | 220mA@12Vcc SA<br>60mA@48Vcc MPX                  |



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GPS STANDARD SRL

Fraz. Arnad Le Vieux, 47 • 11020 Arnad (AO) - Italy • Ph. +39 0125 96 86 11 • Fax +39 0125 96 60 43  
info@gps-standard.com • www.gps-standard.com

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