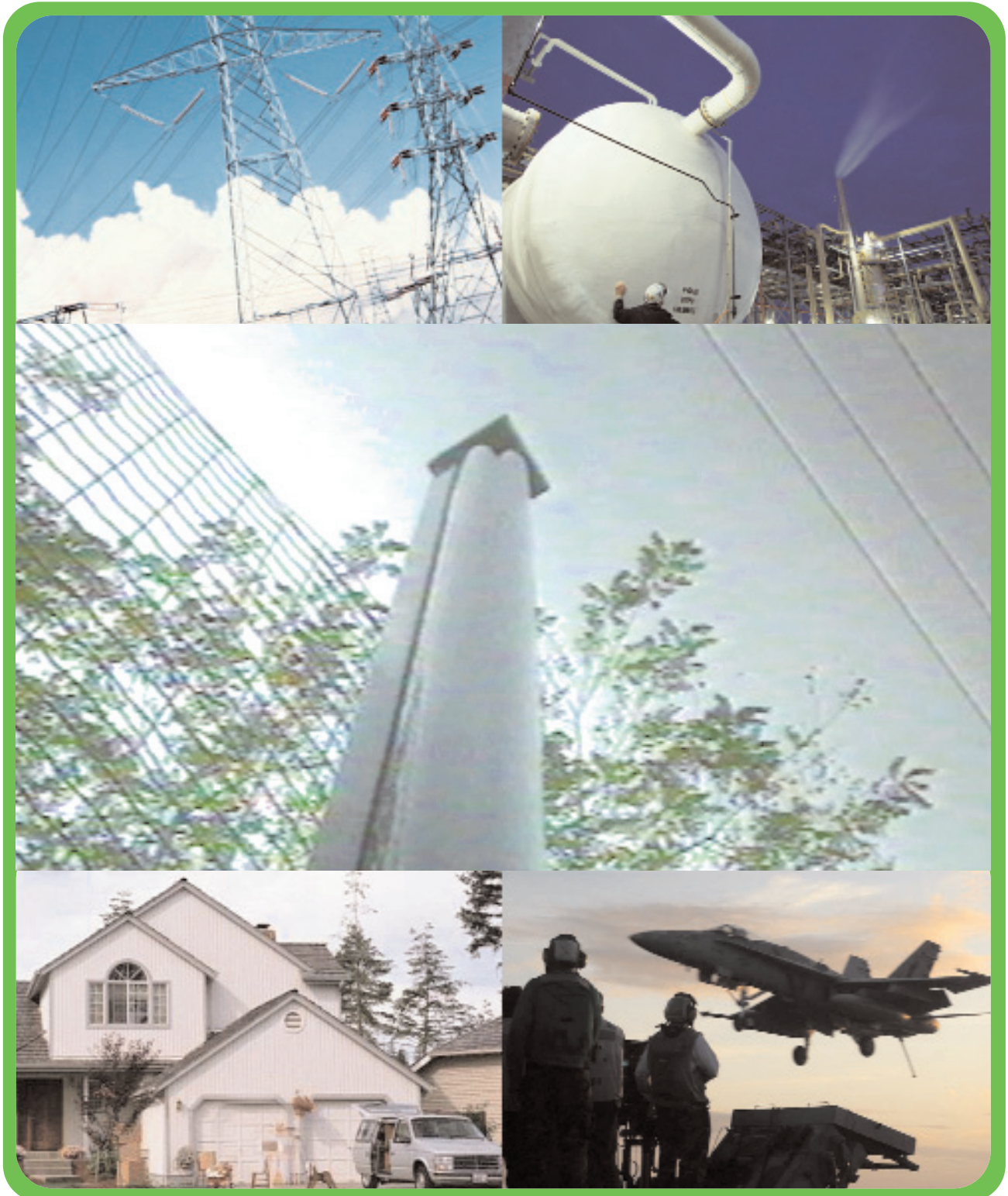


# IPS



## INTELLIGENT INFRARED BARRIERS



## IPS

IPS is a perimeter protection system using infrared beams, for internal and external use, and is designed to have a high resistance to mechanical disturbances and to atmospheric interference.

It uses a micrometric adjustment which provides maximum precision during alignment.

Also, using microprocessor based technology it has automatic gain control of the received signal which almost eliminates the disqualification process, thanks to intelligent analysis of the signal detected at the receiver. When the transmitter is no longer able to communicate with the receiver because of atmospheric conditions there is a special function that will automatically exclude the beam and signal that it has done so. Normal operation will be re-instated automatically when visibility returns to normal. Some models also use a synchronisation signal which makes the system immune to sabotage attempts.

The units are available as single or double beam assemblies.



## Operation

The transmitter module sends infrared light pulses to the receiver together with a co-incident synchronisation signal along a cable. The receiver unit only detects the infrared pulse at the moment it receives the co-incident electrical pulse via the cable (synchronising signal). The receiver does not recognise continuous light (non-modulated) or visible light making IPS immune to sunlight. The maximum range for the IPS system is 250m in internal applications and 200m when used externally.

The beams are connected to a concentrator that can manage up to 8 pairs on a single cable, sending synchronization signals to an associated electronic board and analyzing the signals received. The concentrator then operates the appropriate output, enabling the correct transmitter.

It is also possible to connect the concentrators to a data collection network that can monitor up to 64 concentrators, allowing protection of very long perimeters. When the received signal reduces in level the system activates the automatic gain control to increase the received signal by a factor of up to 50 times, relative to the quiescent level.



## Versions available

### IPS150-250

#### Characteristics

The IPS150 and IPS250 beams are available in the following models: with disqualification and without synchronisation circuits or with synchronisation and disqualification circuits.

A particular characteristic of the second model is the use of a synchronisation signal along a wire to make it immune to sabotage. It also has a disqualification circuit which, in the event of snow, fog or very heavy rain will automatically exclude the beam to prevent false activations, together with an open collector output to signal the disqualification. It is automatically re-enabled when normal visibility is established. The IPS150 has transmitters and receivers with a single beam while the IPS250 units have a double beam.

The IPS250 reduces the possibility of false alarms because it is necessary to break both beams simultaneously to create the alarm.



#### Operation

The transmitter module sends infrared light pulses to the receiver when it receives the synchronisation signal along a cable. The receiver unit only detects the infrared pulse at the moment it transmits the electrical pulse via the cable (synchronising signal). The receiver does not recognise continuous light (non-modulated) or visible light making it immune to sunlight. The alarm output signal is a relay contact via a terminal block.

The maximum range for the IPS150/IPS250 system is 150m in internal applications and 100m when used externally.



### IPS40-60/IPS4000-6000

#### Characteristics

The IPS40 and IPS60 use the same mechanical assembly as the IPS150/250, which allows vertical and horizontal alignment of the beams. Using microprocessor technology gives automatic control of the gain to manage the level of the received signal. This overcomes the problems of disqualification, which can occur in critical climatic conditions.

The IPS40 and IPS4000 use transmitters and receivers with a single beam while the IPS60 and IPS6000 are designed with a double beam, which considerably reduces the potential for false alarms as it will only signal alarms when both of the beams are blocked simultaneously.

The 4000 and 6000 series are designed to be integrated into the Multiplex2000 system where the concentrators communicate with the UCP via a serial line while the 40 and 60 series are Stand-alone.



## Operation

The microprocessor based Concentrator can control up to 8 pairs of single or double beams installed in one or two pairs of columns, using a single cable. The concentrator sends a synchronising signal to a synchronising module, which divides the signal into individual time slots and passes them to transmitter units connected to the synchroniser outputs. The concentrator also has an led scale which can be used for alignment of the transmitter and the corresponding receiver.

The signals from the 8 pairs of beams are output on a common alarm relay (also a common fault relay). By adding an optional relay module it is possible to assign an alarm output relay to each single pair of beams. As well as the stand alone mode (40-60) the concentrator can be connected, via an appropriate power and communication cable, to the central UCP. Up to 64 concentrators can be managed by one UCP. The concentrator modules are assigned an address code and are sequentially polled by the UCP. In this case the alarms from each individual beam, the general alarm, the disqualification, tamper and interference signals can be output using the appropriate relay board. By means of an RS232 connection between the UCP and a PC and using a control and management software package (Multiplex2000) it is possible to view the analogue signals from the beams and help with the alignment process. It also gives simple and immediate access to the control of alarm thresholds, disqualification thresholds and speed of crossing times and all other parameters. The Multiplex software can also continuously record the analogue signal from the beam

The PC can memorise on disc all of the data relevant to the event, together with the preceding 4 seconds of data, also storing the date and time of the event. IPS 4000 and 6000 can be integrated with other perimeter protection systems. The maximum ranges of the IPS 40 and IPS4000 are approx. 200m for internal use and 150m for external use and for the IPS 60 and IPS6000 are approx. 250m for internal use and 200m for external use.

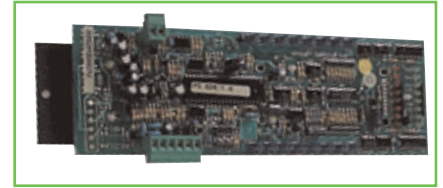


## Components IPS40-60

### Peripheral Unit (concentrator)

This unit can control between 1 and 8 pairs of receivers.

The concentrator, as well as analysing the received signal and signalling alarms via the relay contacts, also sends the synchronisation signal to the synchroniser.



### Synchroniser

This unit can control between 1 and 8 pairs of transmitters, receive the synchronisation signal from the concentrator and enable each transmitter module connected to it.



## Components IPS4000-6000

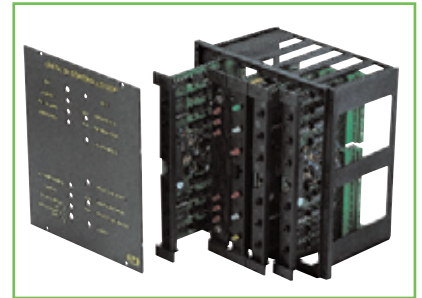
### Peripheral Unit (concentrator)

This unit can control between 1 and 8 pairs of receivers.

The concentrator, as well as analysing the received signal and signalling alarms via the relay contacts, also sends the synchronisation signal to the synchroniser.

### Synchroniser

This unit can control between 1 and 8 pairs of transmitters, receive the synchronisation signal from the concentrator and enable each transmitter module connected to it.



### Universal Communications Processor (UCP)

This unit can control between 1 and 64 peripheral units (concentrators). It controls and manages all the signals provided by the peripherals, to show any alarms or faults on the appropriate relay card. It can also interface the system with a PC to provide commissioning, troubleshooting and maintenance.

### Relay Board

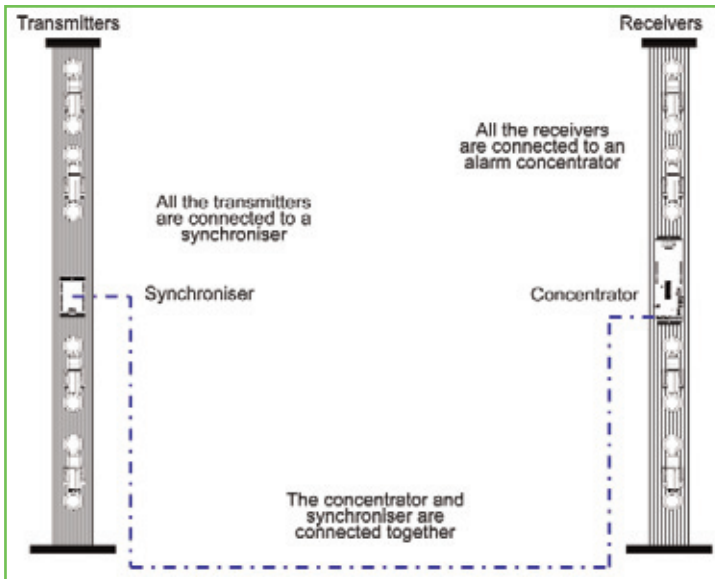
The relay board provides 8 programmable outputs managed by the Multiplex2000 software.

### Interconnection Cable

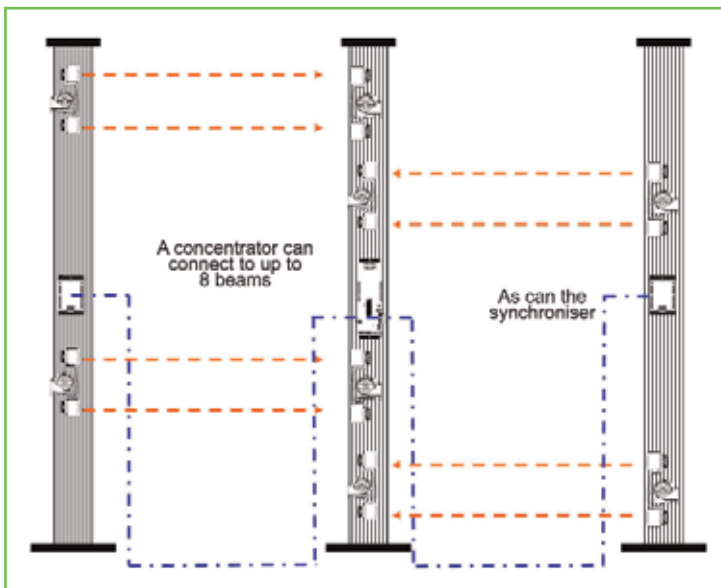
This is the 4 core screened cable which connects the peripheral units to the UCP, carrying power and communications.



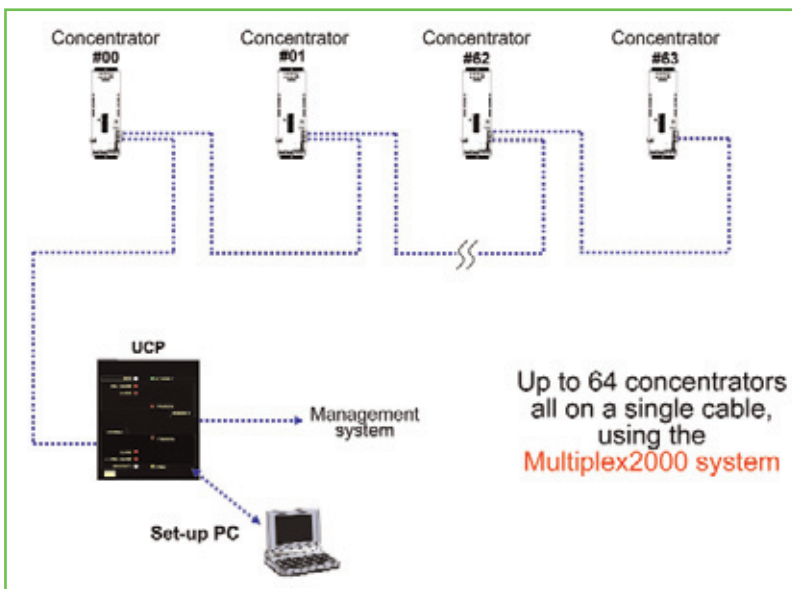
## Configurations



Multiple beams are installed in columns of various heights



Many concentrators can be connected to universal communications processor (UCP) using a BUS cable for data and power



A concentrator can be connected to two synchronisers in order to cover two zones



## Multiplex2000 Architecture

The Multiplex 2000 system is a communication network designed to integrate and control many different types of perimeter detection systems on a single network.

All the GPS perimeter systems can integrate directly into the network while the network is also capable of monitoring the output contacts of any other form of detector or monitoring device.

At the heart of the system is the Universal Communications Processor (UCP) which controls and manages all of the communications received from the remote sensor systems and then, based on the data received, transmits data to associated local or remote output devices. It has two main serial data buses, running at 115kbaud, using a proprietary protocol GPS COM115 to communicate with the remote devices.

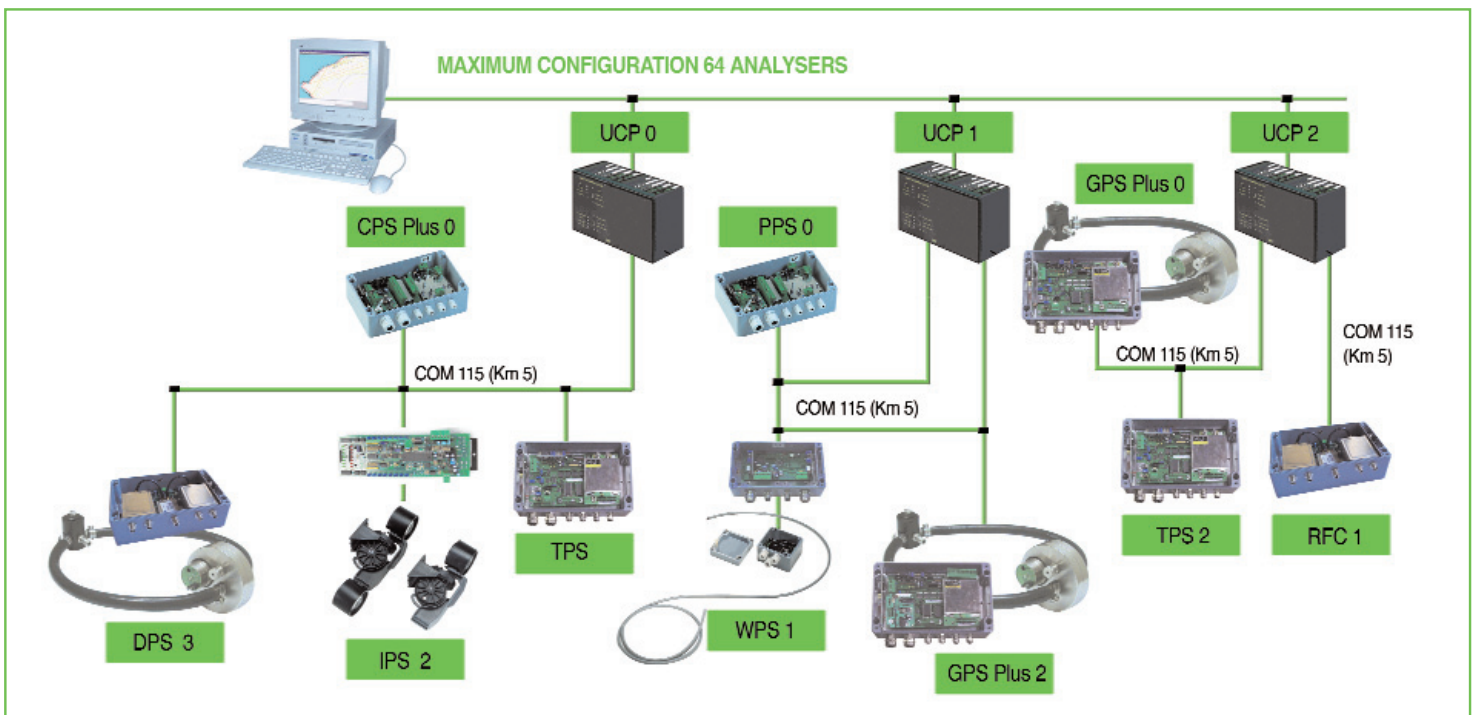
These two buses can be independent or can be connected in a loop so that in the event of a single failure in the loop all the remote peripherals will remain in communication.

Any single UCP can manage up to 64 remote peripherals of up to 16 different types, distributed in any combination on the two buses. In systems with a requirement for more than 64 peripherals up to 64 UCP can be linked.

Up to 24 output devices can be associated with any particular peripheral, for signaling of pre-alarms, alarms, pressure warnings, faults, etc.

The assignment of an output to a particular function is controlled by software and is totally flexible.

The UCP can be connected to a personal computer running a Windows™ based software package, which gives access to real time sensor monitoring, sensor and relay output configuration as well as save and view functions relating to the analogue signals from the field sensors.



## Technical Characteristics

### GENERAL DATA

	IPS150/250	IPS40/60	IPS4000/6000
Power supply	10-18 Vdc	10-13,8 Vdc	24-55 Vdc
Wavelength	940 Nm	940 Nm	940 Nm
Transmission angle	2°	2°	2°
Repetition ratio	1/400 circa	1/400 circa	1/400 circa
Impulse duration	18/22 ms	18/22 ms	18/22 ms
Heater power supply	12-15 Vac	12-15 Vac	12-15 Vac
Heater current	max 300 mA	max 300 mA	max 300 mA
Operating temp. without heater	-5°C +60°C	-5°C +60°C	-5°C +60°C
Operating temp. with heater	-30°C +60°C	-30°C +60°C	-30°C +60°C

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